دستور الأدوية الدولي

The International Pharmacopoeia

الطبعة الثالثة

Third Edition

المجلد الأول

Volume 1

طرق عامة للتحليل

General methods of analysis

تمت الترجمة في المركز العربي للتعريب والترجمة والتأليف والنشر بدمشق

منظمة الصحة العالمية 1979

World Health Organization 1979

The International Pharmacopoeia

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Volume 1

General methods of analysis

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[illegible]

[illegible]

• [illegible]

1. [illegible] 1 [illegible] 2 [illegible] 372.

AMENDMENTS AND CORRIGENDA TO VOLUMES 1 AND 2

2. [illegible] 1 [illegible] 2 [illegible] 3 [illegible] 310.

AMENDMENTS AND CORRIGENDA TO VOLUMES 1,2 AND 3

3. [illegible] 1 [illegible] 2 [illegible] 3 [illegible] 4 [illegible] 256.

AMENDMENTS AND CORRIGENDA TO VOLUMES 1,2,3 AND 4

[illegible]

• [illegible]

• [illegible]

[illegible] RS [illegible] TS [illegible] VS [illegible]

[illegible]

[illegible]

[illegible] *International Pharmacopoeia* [illegible] 1951 [illegible] WHA1.10[1] [illegible] 1959 [illegible] supplement [illegible] 1955 [illegible] 1967 [illegible] 1971 [illegible]

[illegible] WHA20.34[2] [illegible] WHA28.66[3] [illegible] prophylactic [illegible] therapeutic [illegible]

[illegible] 1 [illegible] volumes [illegible] monographs [illegible]

[illegible] 1 [illegible]

[1] [illegible] 1973 [illegible] 1 [illegible] 127.

[2] [illegible] 1973 [illegible] 1 [illegible] 132.

[3] [illegible] II [illegible] 1979 [illegible] 52.

[illegible]

[illegible] 42 [illegible] 1 [illegible]

[illegible] units [illegible] WHA30-39[4] [illegible] International System of Units (SI) [illegible] 3 [illegible].

[illegible] 1 [illegible]

[illegible] WHA3.10 [illegible]

[illegible]

[4] [illegible] II [illegible] 1979 [illegible] 99.

[illegible]

[illegible]

3 .... [illegible]
5 .... [illegible]
13 .... [illegible]
15 .... [illegible]

[illegible]

21 .... [illegible]
23 .... [illegible]
31 .... [illegible]
32 .... [illegible]
35 .... [illegible]
36 .... [illegible]
43 .... [illegible]
47 .... [illegible]
49 .... [illegible]
52 .... [illegible]
53 .... [illegible]
54 .... [illegible]
77 .... [illegible]

[illegible]

83 .... [illegible]
105 .... [illegible]

108 .... [illegible]
112 .... [illegible]

[illegible]

119 .... [illegible]
124 .... [illegible]
125 .... [illegible]
125 .... [illegible]
129 .... [illegible]
130 .... [illegible]
132 .... [illegible]
132 .... [illegible]
135 .... [illegible]
139 .... [illegible]
143 .... [illegible]
144 .... [illegible]
145 .... [illegible]
147 .... [illegible]
148 .... [illegible]
148 .... [illegible]
149 .... [illegible]
149 .... [illegible]
150 .... [illegible]

[illegible]

155 .... [illegible]
162 .... [illegible]
165 .... [illegible]

165 .... [illegible]

167 .... [illegible]

[illegible]

173 .... [illegible]

[illegible]

177 .... [illegible]

178 .... [illegible]

179 .... [illegible]

GENERAL NOTICES

Quantities and their precision

20 decimals 0.20 2.05 1.95 2.0 20.5 19.5 .0.0205 0.195

Temperature measurements and their precision

Calculation of results

decimal 1 9 5 4

Solution

Solubility

20 "Part" 1

1	Very soluble
10 1	Freely soluble
30 10	Soluble
100 30	Sparingly soluble
1000 100	Slightly soluble
10000 1000	Very slightly soluble
10000	Practically insoluble

[illegible]

Loss on drying [illegible]

[illegible] 1.0 [illegible]

Constant weight [illegible]

[illegible] 1 [illegible] 0.5 [illegible] ignite [illegible]

Containers [illegible]

[illegible] permeability [illegible]

Well-closed container [illegible] handling [illegible]

Tightly closed container [illegible] deliquescence [illegible] efflorescence [illegible]

Protection from light [illegible]

[illegible]

Patents and trademarks [illegible]

[illegible]

[illegible]

Use of trade names [illegible]

[illegible]

Reagents, test solutions and volumetric solutions [illegible]

[illegible] VS، TS، IRS، R [illegible] .167 [illegible]

UNITS OF MEASUREMENT [illegible]

[illegible] *Système international d' Unités* (International system of Units) (SI) [illegible] (CGPM) [illegible].[5] [illegible] SI [illegible] (1960) [illegible]

[illegible] (SI) [illegible] submultiples [illegible] multiples [illegible]

[illegible] decimal multiples [illegible] (SI) [illegible] submultiples

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[5] [illegible] SI [illegible] *A guide to international recommendations on names and symbols for quantities and on units of measurement* [illegible] *The SI for* [illegible] 1975 [illegible] D. A.Lowe [illegible] *health professions* [illegible] .1977

ǺȢǄ giga (G) 10^9
ǺȢƞ mega (M) 10^6
ȥǙõ killo (k) 10^3
ȾøǪè centi (c) 10^{-2}
ȾǙƞ milli (m) 10^{-3}
ʂȀǾ micro (μ) 10^{-6}
ȥǪǺ nano (n) 10^{-9}
ȥǾǣ pico (p) 10^{-12}

ǦǶÛä Ž ƘƞǼǺè ȾøǪä ÛǦǶǶÔä ɭèȥÕäʂ ğȀʒȒʈ ÛǦǶǪä ğǼǵȥǪ ȨȥÊä ȻȽ ȳǼǺè Ǵȑȥ
:ɃʂǼä Ǵʂắɉ øȥǪèǼ ǦǮǶä

Units of length ȯȥÛä ğǼǵʂ	*Units of mass* ǦǪÔä ğǼǵʂ
(ȳ) ǺǪƞ meter (m)	(ƞǙõ) Kilogram (kg)
(ɭè) ǺǪƞ ȾøǪè centimetre (cm)	(ȟ) ȳǺȡ gram (g)
(ɭǙƞ) ǺǪƞ ȾǙƞ millimeter (mm)	(ƞǙƞ) ȳǺȡ ȾǙƞ milligram (mg)
(ɭǾƞ) ǺǪƞʂǾƞ micrometer (μm)	(ƞǾƞ) ȳǺȡ ʂǾƞ microgram (μg)
(ƀ) ǺǪƞȥǪǺ nonometer (nm)	(ƞǪ) ȳǺȡ ȥǪǺ nanogram (ng)
Units of volume (capacity) (ǦǶÊä) ɭǄƩ ğǼǵʂ	*Units of time* ȸƞÂä ğǼǵʂ
^{3}ɭè1000 = (ȯ) ǺǪ Litre (l) = 1000 cm^3	Ǵè year (a)
^{3}ɭè1 = (Ōƞ) ǺǪ ȾǙƞ millilitre (ml) = $1cm^3$	day (d)ȳȥ
^{3}ɭè 0.001=(ŌǾƞ) ǺǪʂǾƞ microlitre (μl)=$0.001cm^3$	Ǵʒè hour (h)
	ǦŌʂắ minute (min)
	ǦǪǪ Second (s)
	ǦǪǪ ȾǙƞ millisecond (ms)
	microsecond (μs)
Units of temperature ǥøǺƩ ǦǄøắ ğǼǵʂ	*Units of pressure* ȔȢȒä ğǼǵʂ
ƙǺǙõ kelvin (k)	ȯǾèǣ ȥǙõ kilogram (kPa)
(°ȳ) Ǵȥƞ ǦǄøắ degree Celsius (°C)	ȯǾèǣ pascal (Pa)

:ǦòǺɿ ğɼƩ ȐǶ Ž ȒǺ Non-SI ğǼǵȥǙ ɃʂǼä ȳȚä ğǼǵʂ Ƙȡ ȸƞ ğǼǵʂ ƘƞǼǺè
0.69kPa ≈ (psi ǕǘǘǺǹ ŌǾÎ Ûʂ Ibf/in^2) ȝǺǶ (Ǧòȥ) Ì ŌǾ ǼʂǺ ǥȥ
133Pa ≈ (ȨǦǝ ɭǙƞ Ûmm Hg) ȨǦǝ ǺǪƞ ȾǙƞ

Units of electric current *ȾəǻǟǛƬǾǻǻ øǺƐǭǻǻ ğǻǼǵş*

ƘƓɳǕ amper (A)

ƘƓɳǕ ȾǛƐɳ milliamper (mA)

ƘƓɳǕ ɀɸǺɸ nanoampere (nA)

Units of electric potential ȾəǻǟǛƬǾǻǻ ǼƬəǻ ğǻǼǵş

Ǩǻɀɀ volt (v)

Ǩǻɀɀ ȾǛƐɳ millivolt (mv)

Units of resistance ǴɳşǺǾƫǻ ğǻǼǵş

ȳşǕ ohm (Ω)

Units of radioactivity [6] *ǦƐʒǺǶ̀ɋǻ ğǻǼǵş*

ǾǺǞǾƐǻǺȣƐǄ Gigabecquerel (GBq) = 27.03mCi

ǾǺǞǾƐǻ ǺȣƐɳ megabequerel (MBq) = 27.03μCi

ǾǺƘǾƐǻ becquerel (Bq) = 27.03pCi

Ƀǿɀȭ Curie (Ci) = 37GBq

Ƀǿɀȭ ȾǛƐɳ millicurie (mCi) = 37MBq

microcurie (μCi) = 37KBq

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[6] ȾǕʒǛ ȤǺǞǨ ğǻǼǵş ǦƐʒǺǶ̀ɋǻ ǨƠ ɉǻɀǺʒ "ǦǺşǻɉǻ ǦǨÎƫǻ Radiopharmaceuticals" (ǺȚɸǻ ǺǶǺǾǻǻ ğ 45-42).

PHYSICAL METHODS ƕĭəƑĭŖĭƻǁɛ ƼþƯǁɛ

MEASUREMENT OF MASS [illegible]

[illegible] capacity [illegible] balances [illegible]

[illegible] accuracy [illegible] sensitivity

accurately [illegible] 50 [illegible]

[illegible] 0.1 [illegible] 200-100 [illegible] weighed

0.001 [illegible] 20 [illegible] 50 [illegible]

[illegible] microbalance [illegible]

[illegible]

Apparatus [illegible]

[illegible]

[illegible]

[illegible] (magnetic [illegible]

[illegible]

[illegible]) damping device [illegible]

[illegible]) [illegible] beam [illegible] ([illegible]

[illegible] (aperiodic balance [illegible]

[illegible] manual placement [illegible]

[illegible] weight –loading [illegible]

[illegible]

[illegible] optical scale projection system

[illegible] datum line [illegible]

[illegible]

counterpoised [illegible] single-pan [illegible]

[illegible] beam

[illegible]

[illegible]

[illegible]

Placement of balance [illegible]

[illegible] leveling [illegible]

Checking of sensitivity [illegible]

[illegible]

RECOMMENDED PROCEDURE [illegible]

Checking the stability of the equilibrium position [illegible]

[illegible] one-tenth [illegible] 0.001 [illegible] 0.1

Operation of the balance [illegible]

[illegible] beam [illegible] pan supports [illegible]

[illegible]

[illegible]

DETERMINATION OF MELTING TEMPERATURE, MELTING RANGE, CONGEALING POINT, BOILING POINT, AND BOILING RANGE

[illegible]

[illegible]

[illegible]

[illegible]

[illegible] melting range [illegible]

[illegible] apparent constants [illegible] reproducibility [illegible]

A. [illegible]

Determination of Melting Temperature and Melting Range of Pulverizable Substances

[illegible] corrected [illegible] *melting range* [illegible] collapse [illegible]

[illegible] "melting range *a-b* °C [illegible] *b-a* [illegible]" [illegible]

[illegible] *melting temperature* [illegible]

Apparatus [illegible]

[illegible]

[illegible] Silicones [illegible]

[illegible]

[illegible] 360+ [illegible] 10– [illegible] 0.8 [illegible] solid-stem [illegible] safety [illegible]

[illegible] *total-immersion-thermometer* [illegible] liquid column [illegible] *partial-immersion thermometer* [illegible] emergent liquid column [illegible] emergent-stem [illegible]

[illegible] borosilicate [illegible] 0.15-1.10 [illegible] 1.1-0.9 [illegible]

[illegible] [7] [illegible]

RECOMMENDED PROCEDURE [illegible]

[illegible] 24 [illegible]

[illegible] 3 [illegible] 5 [illegible]

---

[7] [illegible] 69+ [illegible] 263+ [illegible] Box 3045, S-171 03 solna, sweden [illegible]

[illegible]

[illegible] mark

[illegible]

[illegible]

$$0.00015\ N(T - t)$$

[illegible] T

[illegible] t

[illegible] N

[illegible] emergent-stem [illegible]

[illegible] T [illegible] Ts [illegible]

[illegible]

[illegible]

Determination of Melting Point of Fats, Waxes, etc

[illegible]

Apparatus

RECOMMENDED PROCEDURE

C.

Determination of Congealing Point

Apparatus

RECOMMENDED PROCEDURE [illegible]

[illegible]

D. [illegible]

Determination of Boiling Point

[illegible]

Apparatus [illegible]

[illegible]

RECOMMENDED PROCURE [illegible]

[illegible]

emergent- [illegible] stem [illegible] 670) [illegible] 101.3 [illegible]

$$k\,(p - p_1)$$

[illegible] barometric [illegible] p [illegible]

[illegible] p_1 [illegible]

[illegible] k

[illegible]

p ([illegible]) = 101.3

k = 0.3 ([illegible] 1 [illegible])

[illegible]

p ([illegible]) = 760

k = 0.04 ([illegible] 1 [illegible])

[illegible]

[illegible]

Determination of Boiling Range (Distillation Range)

[illegible]

Apparatus [illegible]

[illegible] receiver [illegible]

[illegible] 60-50 [illegible] 12-10 [illegible] side-arm [illegible] 16-14 [illegible] 12-10 [illegible]

[illegible] 75-70 [illegible] 5 [illegible]
[illegible] 60-55 [illegible]
[illegible] 40 [illegible]
[illegible] bent adapter [illegible] delivery [illegible]
[illegible] 0.5 [illegible] 50-25 [illegible] receiver [illegible]
[illegible] Bunsen [illegible]
[illegible]
[illegible] 7-5 [illegible] asbestos [illegible]
[illegible] 16-14 [illegible]
[illegible] 4-3 [illegible]
[illegible] A [illegible] 100 [illegible]
[illegible]
[illegible] .emergent-stem correction [illegible]
[illegible] bulb [illegible] stem [illegible]

RECOMMENDED PROCEDURE [illegible]

[illegible] 25 [illegible]
[illegible] 0.5-0.3 [illegible]
[illegible] 10-5 [illegible]
[illegible] 1 [illegible] 3-2 [illegible]
[illegible]

[illegible] (distillation ranges [illegible])
[illegible] 760) (Kpa) [illegible] 101.3 [illegible]
[illegible] 2.7) [illegible] 0.36 [illegible] 0.1 [illegible]
[illegible]

DETERMINATION OF MASS DENSITY AND RELATIVE DENSITY

(Q) ... cubic meter ... (SI) ... 1 ... 1 ... 1 ... reduced to vacuum ... buoyancy ... (Q_{20}) °20 ... (conditions ... (d_{20}^{20}) ... specific gravity ... "d_{20}^{20}" ... "°20 ...

... °20 ... d_4^{20} ... 0.998234 ... °20 ... °4 ...:

$$d_4^{20} = 0.998234\, d_{20}^{20}$$

RECOMMENDED PROCEDURE

... hydrostatic ... d_{20}^{20} ... pycnometer ...

... (g/ml ... kg/l ... Q_{20} ...

$$Q_{20} = 0.99703\, d_{20}^{20} + 0.0012$$

Use of pycnometer

... plummet ... beam ... riders ...

[illegible] ([illegible]) [illegible]

Use of pycnometer [illegible]

[illegible] 5 [illegible] 20° [illegible] mark [illegible] 30 [illegible] 20±1° [illegible] inter [illegible] 20±1° [illegible] (d_{20}^{20}).

[illegible]

DETERMINATION OF OPTICAL ROTATION AND SPECIFIC ROTATION

[illegible] optical activity [illegible] ([illegible]) [illegible]

optical rotation [illegible]

[illegible] dextrorotatory [illegible] (+) [illegible] (–).

[illegible] (*a*) [illegible] angular [illegible] radian (rad) [illegible] (SI)

[illegible] 589.3 [illegible] (sodium D line) D [illegible] 589.6 [illegible] 589.0 [illegible] 546.1 [illegible]

[illegible] photoelectric polarimeter [illegible]

[illegible] .°25-20 [illegible]

[illegible]

Specific optical rotation (specific rotation) [illegible]

[illegible] 100 [illegible]

[illegible] 1 [illegible] 100 [illegible]

$$\frac{10000}{ldp} = \frac{10000a}{lc} = \text{[illegible]}$$

[illegible] c [illegible] l [illegible] a [illegible] 100 [illegible] p [illegible] d [illegible] 100 [illegible]

[illegible] λ [illegible] t [illegible] $[\alpha]^t_\lambda$ [illegible] (SI) [illegible] m^2·rad/mol [illegible] (a_n) molar [illegible] m2·rad/kg [illegible]

Apparatus [illegible]

[illegible] .polarimeter [illegible]

[illegible] 0.05° [illegible] 0.01°

[illegible] :visual [illegible]

[illegible] .mercury-vapour lamp [illegible] :photoelectric [illegible] .0.01° [illegible]

Measurement of optical rotation [illegible]

[illegible] alignment [illegible] .optical bench [illegible] mark [illegible] monochromatic [illegible] transmitting [illegible] D [illegible] 546.1 [illegible]

[illegible]

[illegible] micro [illegible] semi-micro [illegible] uniform [illegible]

[illegible] end-plates [illegible] strains [illegible] end-plate strain [illegible]

[illegible]

ɹȦõ ǟǣǕ ȦǹǕ ÆǺǾɳ ɃǕ şǕ ǒȦţǟ ǦǜȦèɀǣ ǦƵɫǅǵ ǦǕǅɀǵ ƃǕ ǑǬȦķş ÆèȦȦɳ ĻÊę ɹàɀł ǕǦǤǗò ǵǻȦţǟ ǨǬȦõ ǟǣǕ şǕ ǒȦţǟ ǴÛè ǑȞƨ ȣȦõ ÆǺǾɳ ȣȦȒł .blank ǼŁȦÎǟ ƙƵǨǨ ǑǅɈ ÆǺǾţǟ ȸɳ ĻÊę ʔǬǬÊķş ǕǵǻşȦɀǵǟ Ž ǻǻƕȚ ǧȦȦɀǪȚ ǵǿǟȦǵ ǒƕǨķş Ǖmark ǦƧɀǟ Ǖƅǻǖ ǻɫǟǻ ȸǑǑ Ǖȸɳ ǨǦȦę meniscus ǑǤŁ ǑǑÎǣ ǵǻȦʒ ɹɀǑȦ ɃǾǟ ÆǺǾţǟ

ǟɀǤǖ ƃǕ ǒɀǤǂǟ ǑǬȦł .ǯÂɀş ǕǦƧɀǟ ʔǿǪǵ ÆǺǾţǟ ȣȦȒł .ǤǟȦǫ ǵǿǟȦǵ ǦǅǿǻȻǣ ǧȦƥ Ž ǦǕǅɀΣǟ ĘǽǤǨǣ ǦǕǅɀΣǟ ȨǽǬǨ Ž ǦȦȦǨǟ ɆǹɀǨ ʒɳ ǕǵǻȦţǟ ɹȦşǣ ȸɳǟ ȸɳ ǻǿǟǼǪǣ ǦǬƵęǻ 30 ǒǤǹ ǬǬǣ ĻǪ ɹǕ ǑȒȦȦ ǕǟȦǕǬǪèɽǟ ǟȦƵǬɳ

ŞɀȦȞł .mutarotation ǒǼǪţǟ ȦȦşǼǪǟ şǕ racemization ĻĚşȦǪǤ ʒȒơ ȦǼǕ ȣşȦǨţǟ ǻǟɀţǟ ǦǬȦǵ Ž ȧȦȣǪÊţǟ ȸɳÂǟ

.ȧȦȣǪÊţǟ ȸɳÂǟ ǦǤòȦɀ ǒȦǤǕ ǦǣɀǤǕţǟ ǵǿǟȦΣǟ ǦǅǿǼǣ ǒɀǤǂǟ ʔǤʒ

.ǟȦǕǬǪèɽǟ ǟȦƵǬɳ ǟɀǤǖ ƃǕ ǵȦǏȦǤɳ ǑǬȦķş ǕǨǿşȦȓ ǬǬǣ ɹȦõ ǟǣǕ ǕȦǿǿǟȦǵ ǒƕǨķ ǕǦǤǝȦè ǵǻȦţǟ ǨǬȦõ ǟǣǕ

ǑęɈǟ ʔǤʒ ǧǟȦɳ 6 ŞǵǤţǟ ȦȦşǼǪǟ ǕȦǬł Ǖvisual ɃǿȦÔǣǫǟ ǟȦƵǬǟ ǑǅɈ ǟȦǕǬǪèɽǟ ǟȦƵǬɳ ǧǼǺǪÊł ȦɳǼȦʒ

ǕǒɀǤȞɫǤǬ ʔǬǬǪÊţǟ ÆǺǾţǟ ǒǼǪÊǺ .ǦʒȦÊǟ ǟǿȦǬʒ ǦǬȦǵ ǼȦƟȦǣ ǧǟǬǟȦǬǟ ƵÔǤ ǾǹǕł .ǦǣɀǤǕţǟ ǵǿǟȦΣǟ ǦǅǿǼǣ

ɹǕş .ȟǿȦɀ ȣȦǅ ǟɀǤǖ ʔǤʒ ǼŁȦÎǟ ǧȦǼǼǨǨ ȜȦǅł ǕǦǤǝȦÊǟ ǻǟɀţǟ ǦǬȦǵ Ž .ǤǼǤʒ ǧǟǬǟȦǬǟ ȸɳ şȦÊɳ ǻǼʒ ǕȦǬķş

ǵǿȦǏǫǟ ȸɳ ɹȦɫęȦǟ ɹȦõ ǟǣǕ ŞǵǤţǟ ȦȦşǼǪǟ ɄÛèş ȸɳ ǳȦǕķş ǕǼŁȦÎǟ ǧǟǬǟȦę ɄÛèş ɀŁ ȦȦÔǟ ǦÛǬǤ ǴƵȞÔǨ

.ǴȞÔţǟ ŞǵǤţǟ ȦȦşǼǪǟ ǒȦǕʒǕ ǑǅǕ ȸɳ ɀŁ ǬǬǣ ǑǬş ǕǦÊǬȦȞɳ ǵǿȦǏǕ ȸɳ ȦǤȦõ ǟǣǕ ȣȦȒł şǕ ǕȦƵÊȦǤ sign

ǟȦƵǬţǟ Ǜƴ ʔǤʒ ǻǻȦɫǪʒǟ Ǖǧǟǿǟȃǟ ȸɳ Ǒęǖ ǻǼʒ Ȧɳɉǟ ÆǤÛǪ ǕɄǝɀȓȦǽǪǑǟ ǟȦǕǬǪèɽǟ ǟȦƵǬɳ ǧǼǺǪÊȦ ȦɳǼȦʒ

.ǧǼǺǪÊţǟ

DETERMINATION OF REFRACTIVE INDEX ƥƑƨ ǀǻǗɛ ƒƗƨǽǅǏ ǅǏǏƴȾ

.ǵǻȦţǟ ǬǤǨ Ž ǤǪʒȦè ƃǕ vacuun ǒǤǕǟ Ž ǒɀȒǟ velocity ǦʒȦè ǦǦÊǤ ɀŁ Ȧɳ ǵǻȦţ (n) ǿȦÊǑǤɽǟ ÆÊȦɳ ɹǕ

ǤǾŁ ǼǼǼƠ ɃǿşȦȒǟ ȸţ ǤǤɀ ǬǑǾǑş .ǵǿǟȦΣǟ ȣǤǪǹȦǣş ǤèȦę Ž ǧǼǺǪÊţǟ ǒɀȒǟ ǦǅǿɀɳǑɀù ȣǤǪǹȦǣ ƵǪƸş

ǕǟǾŁ ɹɈ – ǵǻȦţǟş ǒǤǕǟ ȸɳ ȋǼǣ ǕǵǻȦţǟ Žş ǒǟɀƬǟ Ž ǿȦÊǑǤɽǟ ǟȦę ǵǻȦʒ ĻǝǤţǟ ȸţ ǤǤɀ ǼǤɫʒş .(n_{λ}^{t}) ȓşȦÎǟ

.ǦȚǵǤţǟ ĻǬǟ ʒɳ ɃǻǟǼǪʒǟ ƘǤǤ ǤǬ ÈǬǬ ǕǦǿɀǪèǻ ǧȦȦȣǬş

.ǿȦÊǑǤɽǟ ǦşǟȦ ÆǼǅ ƃǕ incidence ǻşǿɀǟ ǦşǟȦ sin ÆǼǅ ǦǦÊǤ ǤǤǕ ʔǤʒ ǿȦÊǑǤɽǟ ÆÊȦɳ ȒǕ ȣȦǨł

ǑǅɈ ȒǕ ǧǼǺǪÊł ɹǕ ȸǑɀ .ǻǟɀţǟ ǦȦɀŁ ǼùɀǨ ǑǅɈ ǦǿɀǪèǼǟ ǧȦȦȣǬǤ ǦòȦǹ ǿȦÊǑǤɽǟ ÆÊȦɳ ǟȦę ǧǼǺǪÊł

.ǻǟɀţǟ ǤǾŁ ǑǯɳǵşȦǬǤ ǿȦǪǹǟ

ǵǿǟȦǵ ǦǅǿǼǣ (lin D Ǜǟǟ) ȦǪɳɀǤȦǤ 589.3 ǦǅǿɀţǟǑɀù Ƀǣ ǧɀǻɀÔǟ ǒɀȓ ǦȓǼǣ ǵǻȦʒ ǿȦÊǑǤɽǟ ÆȨȦɳ ȸǤǨ

.(n_{D}^{20}) °ȳ0.5 ± 20

ÆÊȦɳ ȸʒ ƘǦǨǪǟ ǵǻȦʒ ɄȦǑȦ ǤǤɀ ǦǾɀǪèǼǟ ǧȦȦȣǟ ǑǅɈş .ǵǻşȦɀǵǟ ǧȦǤǤÛǪɳ ǟȦƵǬǟ ǦǼùɀǦȒɳ ǛǦǨǨ ɹǕ Æɀ

[illegible].

Apparatus [illegible]

[illegible] (D [illegible]) [illegible] 589.3 [illegible].

[illegible] prisms [illegible].

[illegible].

[illegible] 20° [illegible] 1.330 [illegible] 25° [illegible] 1.3325 [illegible].

[illegible]

SPECTROPHOTOMETRY IN THE VISIBLE AND ULTRAVIOLET REGIONS

electromagnetic radiation [illegible] monochromatic [illegible].

[illegible] spectral range [illegible] .spectrum [illegible] (380-190 [illegible]) [illegible] (780-380 [illegible]).

[illegible] monochromatic [illegible].

[illegible] quantitative [illegible].

[illegible] *International* [illegible] *Pharmacopoeia*:

(*T*) [illegible] 10 [illegible] logarithm [illegible] – (*A*) *Absorbance* [illegible]

ȣ ấäÀŧõ internal transmission density ǦȄŶǹäǼöä ȯÀǬǬƥғä ǦȥÀǯõ ǴŶÛÔȹ ǬŧȞǬÊŀ ȷ Û ȸÒƩ .transmittance ǒÀÀÛƥғäȘ ÛǦȞȍÀŧǬöä Ûoptical density ǦȞÀÔƗöä ǦȥÀǯÒöä ǬǬäÀè ǦȠǼǺǬÊţä ǦǼÀȍȥöä ǧÀȞŶÛÔţä ȸŧȒǬǩ ÛǬȋ ÀŧǬŶö

.extinction

ǥƎǬǺţä ǥấÀţä ȯŶǹ ȸȠ (ǾȥÀǺöä) ȧøÀţä radiant flux ȝǏţä ȨȥǼǬöä ǦǦÊƥ – *Transmittance (T)* *(ǽÀÀǺöä) ȧäÀǬȠғä*

.transmission ȯÀǬǬƥғäȘ transmittancy ǦǼǽÀÀÀöä ǬǬäÀè ǦŶŧȞǬÊţä ǧÀȞŶÛÔţä ȸŧȒǬǩ .ȝǏţä ȨȥǼǬöä Ǭöǽ ƃÛ

ÀǼȞţä Û(*c*) ǥấÀţä ÂȄõÀǩ ǟÀǬ ǰǩÀƥ ȝŶȝ ǬȠȥÊǬȠ absorbance (*A*) ȠȋÀŧǬöä ǬȍÀǵ – *Absorptivity* (*a*) ǦȞȍÀţä

ÀǬǬȘ ȷÀȞŶÛÔȹ ǼǱȥÀ .(ȴè) ÀǬȠ ȢøǬÊöǽ ¢Àȝ ÀǼȞţä (*b*) ȋÀÔǬȠғä øÀÊȠ ȯȥü ȝȠ ÛÀǬ 1 Ǭõ Ž ÿäÀȣöǽ ¢Àȝ

specific absorption ȢȝȥÀöä ȋÀÔǬȠғä ǬȠÀǼȘ specific extinction ȢȝȥÀöä ǒÀÀÛƥғä ÀƵ ǦȞȍÀţǽ ǦŶÔöä

ǬȍÀǵ ȝŶȝ ÛǦÀȘấȷä ƘǩÀèấ Ž ǬȠȥŧȝ ÿǼǺǬÊȹ ȥȽ Àŧõ Û($E^{1\%}_{1cm}$)"ȢȝȥÀöä ǒÀÀÛƥғä" ǴŶÛÔȠ ȯǼÀ .coefficient

ȯȥü ȝȠ ÛǬȠ100 Ǭõ Ž ÿäÀȣöǽ ¢Àȝ ÀǼȞţä Û(*c*) ǥấÀţä ÂȄõÀǩ ǟÀǬ ǰǩÀƥ ȝŶȝ ǬȠȥÊǬȠ absorbance (*A*) ȠȋÀŧǬöä

ȢȝȥÀöä ȋÀÔǬȠғä ǬȠÀǼȠ" ǴŶÛÔȹ ȣÀǼŀ . $E^{1\%}_{1cm} = 10a$ äǾÒŧȘ ÛÀǬȠ ȢøǬÊöǽ ¢Àȝ ÀǼȞţä (*b*) ȋÀÔǬȠғä øÀÊȠ

Commission on ǦǼǝÀŧǼÒöä ǦǼÀÀÂǼÀöä äȥȠÀöä ǦÀǼȽ Ǭǥȩ ȸȠ ǬǼǼǦȠ ȡȥÀǬǬţä Û"specific absorption coefficient

ǒÀǼŧǼÒŶö ƃȘǼöä ấÀƠŶö Units ǦǼȘǼöä ǧäǼǵȥöäȘ Terminology ǧÀȞŶÛÔţä ȴŶȝȘ ÛPhysicochemical Symbols

ȋÀŧǬöä ǬȍÀǵ ¢ƥÛ ȝŶȝ ÛPure and Applied Chemistry (IUPAC) International Union of ǦǼǼǦÛǬöäȘ ǦÔöÀȴä

ȋÀÔǬȠғä ǬȠÀǼţ a_{SI} ÂȠÀöä ÿǼǺǬÊÀ ÀȠǼȝ Û(*l*) ȋÀÔǬȠғä øÀÊȠ ȯȥü ȝȠ (*c*) ÂǼõÀǬöä ǟÀǬ ǰǩÀƥ ȝŶȝ ǬȠȥÊǬȠ (*A*)

.$a_{SI} = 100a$ Û(ȠŶõ) ÿäÀȡ ȥŶǼõ 1 Ǭõ Ž (2ÿ) ȝǽÀţä ÀǬţÀǽ ǦǼȘǼöä ǧäǼǵȥöä ÿÀȚƥ Ž ¢Àȝ ƎǼŀ ȷ Û ǼƵ ƁǾöä ÛȢȝȥÀöä

ǒÀÀÛƥғä ǬȠÀǼȹ ȘÛ absorbancy index ȋÀŧǬöä ǼǼÊǼȹȘ "absorptivity ǦȞȍÀţä" Ƙǽ äÀǦǬöä ϙǼȝ ғ ȷÛ ǼƵ

.extinction cofficient

ÂȄõÀǩ ǟÀǬ ǰǩÀƥ ȝŶȝ ǬȠȥÊǬȠ absorbance (A) ȠȋÀŧǬöä ǬȍÀǵ – *Molar absorptivity* (ε) ǦǼȥţä ǦȞȍÀţä

ǰǩÀƥ ¢ƥÛ Àŧõ .(*a = A*/*bc*) ÀǬȠ ȢøǬÊöǽ (*b*) ȋÀÔǬȠғä øÀÊȠ ȯȥü ȝȠ ÛÀǬ 1 Ǭõ Ž ǧғȥţǽ ¢Àȝ ÀǼȞţä Û(c) ǥấÀţä

molar ƃȥţä ȋÀÔǬȠғä ǬȠÀǼȹ ǴŶÛÔȹ ȣÀǼŀ .ǥấÀŧŶö ȢǼÂƨä ȷäȥöä ȝȠ absorptivity (a) ǦȞȍÀţä ǟÀǬ

Commission on ǦǼǝÀŧǼÒöä ǦǼÀÀÂǼÀöä äȥȠÀöä ǦÀǼȽ ǬǦȩ ȸȠ ¢ǽ ȝȍȥţä (Linear ǬÛǹ) absorption coefficient

ǦÔöÀȴä ǒÀǼŧǼÒŶö ƃȘǼöä ấÀƠŶö Units ǦǼȘǼöä ǧäǼǵȥöäȘ Terminology ǧÀȞŶÛÔţä ȴŶȝȘ ÛPhysicochemical

ȯÀǬǬƥғä ǦȥÀǯõ ǬȍÀǵ ¢ƥÛ ȝŶȝ ÛInternational Union of Pure and Applied Chemistry (IUPAC) ǦǼǼǦÛǬöäȘ

ȝȠ ǥấÀţä ÂȄõÀǩ ǟÀǬ ǰǩÀƥ ȝŶȝ ǬȠȥÊǬȠ ǥấÀŧŶö (absorbance ȋÀŧǬöä) internal transmission density ȢŶǹäǼöä

ǧÀȞŶÛÔţä ȸŧȒǬǩ .ȯȥȠ 1 Ǭõ Ž 2ÿ øÀǽ ¢Àȝ ÀǼȞŀ ȷ Û ǼƵ ǦǼȘǼöä ǧäǼǵȥöä ÿÀȚÀö ǬǦǩȘ Û ȋÀÔǬȠғä øÀÊȠ ȯȥü

ǒÀÀÛƥғä ǬȠÀǼȠȘ absorbancy index ǦǼȍÀŧǬöä ƎÊǼȹ molar absorptivity ǦǼȥţä ǦȞȍÀţä ǬǱȷ ǬǬäÀè ǦŶŧȞǬÊţä

[illegible] molar extinction coefficient.

[illegible] – *Absorption spectrum* [illegible] graphic.

[illegible] photometrically [illegible]

[illegible] stray light [illegible] slit-width [illegible] solute [illegible] polychromic radiation [illegible] molecules [illegible] association [illegible] dissociation [illegible] ionization.

Apparatus [illegible]

[illegible] monochromatic radiant energy [illegible] dispersing device [illegible] associated [illegible] detector [illegible] amplifiers [illegible] 700 [illegible] 380 [illegible] automatic. [illegible] 700 [illegible] 190 [illegible]

[illegible] single-beam [illegible] double-beam [illegible]

[illegible] housing [illegible] 1 [illegible] silica [illegible]

[illegible].

Spectrophotometer calibration [illegible]

[illegible] calibrations [illegible]

photometric scales [illegible]

[illegible] spectral line [illegible].

[illegible]

[illegible] quartz-mercury arc [illegible] – [illegible]

[illegible] 435.83 [illegible] 404.66,365.48,334.15, 313.16, 302.25, 253.7

[illegible]

[illegible] parseodymium [illegible] didymium [illegible]

[illegible] holmium [illegible] (neodymium

[illegible] 3±536.2 [illegible] 1±360.9 [illegible] 1±287.5 [illegible] 1±241.5 [illegible] maxima

[illegible]

[illegible]

241.15 : [illegible] .holmium perchlorate TS [illegible]

[illegible] 536.3 [illegible] 361.5 [illegible] 278.2 [illegible]

[illegible].

[illegible] %1± [illegible] photometric scale [illegible]

[illegible] potassium dichromate TS [illegible] .absorptivity

[illegible] specific extinction [illegible] absorbance [illegible]

sulfuric acid [illegible] 1000 [illegible] 60.06 [illegible] potassium dichromate [illegible]

: [illegible] *A* [illegible] 1.000 [illegible] VS (0.005 [illegible])

[illegible] 350 ([illegible])	[illegible] 313 ([illegible])	[illegible] 257 ([illegible])	[illegible] 235 ([illegible])	wavelength [illegible]
0.640	0.292	0.865	0.748	*A*
0.646-0.634	0.295-0.289	0.874-0.856	0.756-0.740	[illegible] permitted tolerance
106.56	48.62	144.02	124.54	$E_{1cm}^{1\%}$

transmittance ... inorganic ... national institutions ... photometric scale ... .periodic calibration

Operation of spectrophotometers

... valid ... instruction manual ... double-beam ... calibration ... .reference beam

solvents for use in the ultraviolet region

... lower ... hydrocarbons ... transparency ...

... 1 ... 0.4 ... (750~ ...) ... 1 ... cyclohexane ... .0. 10 ... 240

Identification tests in the ultraviolet region

[illegible] qualitative [illegible]

[illegible] International Chemical Reference Substance [illegible] %10 [illegible]

[illegible] transmittance [illegible]

[illegible]

Quantitative determinations in the ultraviolet region

[illegible]

[illegible] 280-240 [illegible] 0.5± [illegible] 320-280 [illegible] 1± [illegible] 320 [illegible] 2± [illegible]

International [illegible]

Quantitative determinations in the visible region [illegible]

[illegible]

[illegible] "Quantitative determinations in the ultraviolet region [illegible] 5 [illegible]

[illegible]

SPECTROPHOTOMETRY IN THE INFRARED REGION

[illegible] electromagnetic spectrum [illegible] 250-4000 [illegible] $^{-1}$ (40-2.5 [illegible])[1].

[illegible] optical isomers [illegible] Polymorphism [illegible]

[illegible] transmittance [illegible] absorbance [illegible] absorption spectrum [illegible] specific extinction [illegible] absorptivity [illegible] "Spectrophotometry in the visible and ultraviolet regions [illegible] 24).

Apparatus [illegible]

[illegible]

---

[1] [illegible] Wavelengths [illegible] wavelengths [illegible]

[illegible] .detection devices [illegible] optical materials [illegible] .detector [illegible] monochromator [illegible] cm^{-1} 670-4000 [illegible] (15-2.5 [illegible]) [illegible] reliability [illegible] .polystyrene film

[illegible] attenuated total reflectance technique [illegible] single-reflection [illegible] attachment [illegible] alignment [illegible] .maximum transmission [illegible]

Use of solvents [illegible]

[illegible] .([illegible])

[illegible] carbon tetrachloride [illegible] (1 [illegible]) 4000 [illegible] 1700 cm^{-1} (2.5 [illegible] 6 [illegible]) [illegible] IR [illegible] (1 [illegible]) 250 cm^{-1} (40 [illegible]) 2000 - 2400 cm^{-1} [illegible] (4.2 - 5.0 [illegible]) 1300 - 1800 cm^{-1} ([illegible] 5.5 - 7.5) [illegible] 845 - 875 cm^{-1} ([illegible] 11.4 - 11.8) [illegible] .transparency [illegible]

Preparation of the substance to be tested [illegible]

[illegible] mineral oil [illegible] potassium halide [illegible] attenuated total reflectance technique [illegible]

[illegible]

[illegible]:

[illegible] *Method 1* [illegible] capillary film [illegible]

[illegible] *Method 2* [illegible] 5-2 [illegible] mull [illegible] semi-transparent [illegible]

[illegible] *Method 3* [illegible] potassium halide [illegible] (IR [illegible] IR [illegible] 1 [illegible] 200– [illegible] 300 – [illegible] prism instruments [illegible] 300 [illegible] 1.5 [illegible] grating. [illegible] halide – [illegible] 300 [illegible] 1.0 [illegible] 15-5 [illegible] 2000 [illegible] transmission [illegible] 5) $^{-1}$ [illegible] specific absorption [illegible] 75% [illegible] compensation.

[illegible] *Method 4* [illegible]

Identification by reference substance [illegible]

[illegible] 4000 [illegible] 670 $^{-1}$ [illegible] (2.5 [illegible] 15 [illegible] 5% [illegible] 2% [illegible] transmittance.

[illegible]

[illegible] 2 [illegible]

[illegible] 2 [illegible] mineral oil [illegible] fluorinated hydrocarbon oil [illegible] hexachlorobutadine [illegible]

Identification by reference spectrum [illegible]

[illegible] (15 [illegible] 2.5) $^{-1}$ 670 [illegible] 4000 [illegible] International Reference Spectrum [illegible] International Reference [illegible] reference absorbance [illegible] Spectrum International [illegible] superimposed [illegible] polystyrene [illegible] maxima 9.73) $^{-1}$ 1028 (6.25) $^{-1}$ 1601 (3.51) $^{-1}$ 2851 [illegible] Reference Spectrum [illegible]

[illegible] International Reference [illegible] Spectrum [illegible] resolving power [illegible] International Reference Spectra [illegible] (5 2.5) $^{-1}$ 2000 4000 [illegible]

Attenuated total reflectance technique [illegible]

[illegible]

[illegible] translucent [illegible] 2-1 [illegible] rubber [illegible] .reflecting element [illegible] plastic materials [illegible] .[illegible] attachment [illegible] proper alignment [illegible]

ATOMIC ABSORPTION SPECTROPHOTOMETRY [illegible]

[illegible] ground state [illegible]

[illegible]

[illegible] flamless [illegible]

Apparatus [illegible]

[illegible] spectral line [illegible] nebulizer-burner system [illegible] – [illegible]

[illegible] hollow-cathod [illegible] – [illegible]

[illegible] – [illegible] .[illegible] –

[illegible]

[illegible] monochromator [illegible]

Use of solvents [illegible]

[illegible] burner-aspirator [illegible] %2 [illegible]

RECOMMENDED PROCEDURE [illegible]

[illegible] 3 [illegible]

[illegible] 3 [illegible]

[illegible] 3 [illegible]

[illegible]

FLUORESCENCE SPECTROPHOTOMETRY [illegible]

[illegible] 30 [illegible] 20 [illegible]

[illegible] dilutions [illegible]

[illegible]

Terms [illegible]

[illegible] *Fluorescence intensity* [illegible]

[illegible] *Fluorescence emission spectrum* [illegible]

[illegible] *fluorescence excitation spectrum* [illegible]

Apparatus [illegible]

[illegible] (fluorometer [illegible]) [illegible]

[illegible] incident beam [illegible] 90° [illegible]

[illegible]

tungsten

xenon arc

slits

high resolution

3-2

0.3-0.1

Standardization

fluorophore

fluorophore

quinine

sodium fluorescein

rhodomine

Calibration of the wavelength scale

Preparation of solution [illegible]

[illegible]

[illegible] 100 [illegible] 10 [illegible] "inner fulter [illegible]" [illegible] 10-7-10-5 [illegible]

[illegible] $(c\text{-}d)/(a\text{-}b)$ [illegible] c [illegible] b [illegible] a [illegible] d [illegible] 0.40 [illegible] 2.50 [illegible] solvent blank [illegible]

Measurement technique [illegible]

[illegible] exciting beam [illegible]

[illegible]

[illegible] 1 [illegible] %2-1 [illegible]

[illegible]

TURBIDIMETRY AND NEPHELOMETRY [illegible]

[illegible]

Terms [illegible]

[illegible] :*Transmittance (T)* [illegible] transmission [illegible] Tarnsmittancy [illegible]

[illegible] light-scattering effect [illegible] :*Turbidance (S)* [illegible]

[illegible] :*Turbidity (τ)* [illegible]

Apparatus [illegible]

[illegible]

Instrumental measurement [illegible]

[illegible]

Visual comparison [illegible]

[illegible]

COLOUR OF LIQUIDS [illegible]

[illegible]

RECOMMENDED PROCEDURE [illegible]

[illegible]

Stock Colour Standard Solutions [illegible]

Yellow stock standard TS [illegible]

[illegible]

Read stock standard TS [illegible]

[illegible]

Green stock standard TS ÀȒǹɉ̈ ȡÂ̈ʅ̈ ɃøȦǈǆ̈ ȯʐŶ̈ǂ̈

ɈȤ̈ ȯʐŶȚ ȡȠ ȪȠ 10.4 ÛTS ȃȦȞȦ̈ ɈȤ̈ ȯʐŶȚ ȡȠ ȪȠ 20.1 ÛTS ǨȫȦʐȮ̈ ɈȤ̈ ȯʐŶȚ ȡȠ ȪȠ 3.5 БȖ ȣȦȒɫ 10~) ȪȦøʐȦŶÊ̈ Ȑƥ ȯʐŶȞɳ ȪȠ 100.0 БȖ ȤȦƩ ÛTS ÆȦÆΣ̈ ɈȤ̈ ȯʐŶȚ ȡȠ ȪȠ4.0 ÛTS ğȦȵȘȦȮ̈ ɄəȦǫ .ǯÂȶʂ ÛTS (ȯ/ȟ

Brown stock standard TS ɄøȦǤ̈ ɄøȦȦÂʅ̈ ɃøȦǈǆ̈ ȯʐŶ̈ǂ̈

ɄəȦǫ ȯʐŶȚ ȡȠ ȪȠ 8.0 ÛTS ȃȦȞȦ̈ ɈȤ̈ ȯʐŶȚ ȡȠ ȪȠ 17.0 ÛTS ǨȫȦʐȮ̈ ɈȤ̈ ȯʐŶȚ ȡȠ ȪȠ 35.0 БȖ ȣȦȒɫ .ǯÂȶʂ ÛTS ÆȦÆΣ̈ ɈȤ̈ ȯʐŶȞɳ ȪȠ 100.0 БȖ ȤȦȦɫ ÛTS ğȦȵȘȦȮ̈

Standard Colour Solutions ȟȉƥƑȳǄǁ ǅǋǂǁ üȉǁƑƟǄ

ɄøȦǤ̈ ȡÂʅ̈ ɃøȦǈǆ̈ ȯʐŶǂ̈) ǤȦƥÂʅ̈ ǤȦøȦǈǆ̈ ȪȦȦȞȶŶȫ ÆèȦǆ ȤȦȦǺǬȦ ɃøȦǈǆ̈ ɈʐŶ̈ ȯʐŶȚ ÀȒȞɫ ȡȠ ɃøȦǈǆ̈ ɈʐŶ̈ ȯʐŶȚ ǤȶÊȟ ɈȤȮǬ .TS (ȯ/ȟ10 ~) ȪȦøʐȦŶÊ̈ Ȑƥ ȯʐŶȞɳ (ȦȦòɉʂ ȦƥɉȘ ȦȒǹɉȘ ȤÔȦ ȴȩøʂ (ɄøȦǤŶ Bnʂ ÛȦȒǹǬ Gn ÛȦƥǬ Rd ÛȦȦòǬ Yw) ȡÂʅ̈ ɃøȦǈǆ̈ ȯʐŶǂ̈ ɈȦÔȦ ƙȦǬ̈ ƙʐȦǵ .ǤȦǿȖ ʔÛȟ ʐȽ Ȧȶõ ÛȤȦȦǺǬ̈

ɈʐŶ̈ ȪȦȦǂ ȤȦȦǺǬ̈ ȴȩø ɃøȦǈǆ̈	*ȡÂʅ̈ ɃøȦǈǆ̈ ȯʐŶǂ̈ (ȪȠ)*	(*ȯ/ȟ10*) ȪȦøʐȦŶÊ̈ Ȑƥ ȯʐŶȚ (ȪȠ) *TS*
0	0.78	99.22
1	1.65	98.44
2	3.12	96.88
3	6.25	93.75
4	12.50	87.50
5	25.00	75.00
6	50.00	50.00
7	100.00	–

ȡȮȘ ȄȶÎ̈ ǦȞȉȖ ȡȠ ǦȶȚ ÛǦȪŶȣȠ ǦǄǄȦ ǦʒȘȖ Ž 7-4 ƙ̈ ȳȦȩøɉ̈ ğ̈ǣ ǤȦøȦǈǆ̈ ɈʐŶ̈ ȪȦȦȚ ȡÂơ ȡȮʐ .ÆŶǕ̈ ÆȦʒ ÀȒȞɫ ɈȖ ÆǄȦʐ ȦǯõȖ ǤȦȦǺǆ̈ ǤȦøȦǈǆ̈ ɈʐŶ̈ ȪȦȦȚ

RADIOPHARMACEUTICALS ȟȳʅɃǄǁ ȟȉǋɋǕǁ

(radioactive pharma- ȦʒȦȞȉȖ ǦÛȦÎȦ̈ ǦȦƥɟÆȦÔ̈ ǻ̈ʐǆ̈) ǦȞÎǆ̈ ǤȦȘǻɉ̈ øȦǬǹȘ handling ǒ̈ÆȦȖ ÆŶÛǬ .ȦȽØȦȦǬ̈ ƙȶəȦȪ̈ ǤȦȽ ʔŶʒ ȦüȦǺǆ̈ ȪǿȪƙȘ ǦȞȞȉò ǰəȦǫ ʔŶʒ ȯʐÔΣ̈ ȡȮʐ ǬȦɯ ǦòȦǹ ǦȦȪȟ ȦȩȦü ceuticals)

[illegible]

Definitions [illegible]

Nuclide [illegible]

[illegible] mass number [illegible]

Radioactivity [illegible]

[illegible] transformation [illegible]

[illegible] "disintegration [illegible]" [illegible] "transformation" [illegible]

Radionuclide [illegible]

[illegible]

Units of radioactivity [illegible]

[illegible] (SI) [illegible] becqurel (Bq) [illegible] (S–1) [illegible] Curie (Ci) [illegible] 1 [illegible] 3.7 × 1010Bq.

Units of [illegible] "measurement" [illegible] (4 [illegible]).

Hall-life period [illegible]

[illegible]

[illegible] exponential decay [illegible]:

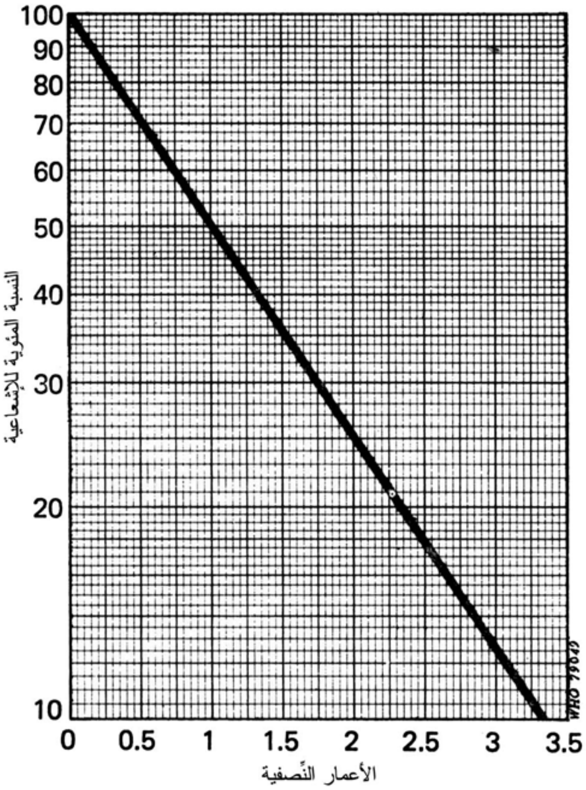
$$N = N_0 e^{-\lambda t}$$

[illegible] N [illegible] N_0 [illegible] $t = 0$ [illegible] λ [illegible]

[illegible]

$$T_{\frac{1}{2}} = \frac{0.693}{\lambda}$$

[illegible] .(1 [illegible])



[illegible] 1 [illegible]

Radioactive concentration [illegible]

[illegible] .standardization [illegible] 30 [illegible]

Specific radioactivity (or specific activity) [illegible]

[illegible]

1" [illegible] (O–iodohippuric [illegible] 1 [illegible] (1 mCi of iodine-131) 131- [illegible] 1 [illegible] 75-[illegible] 40MBq" [illegible] "1979 / [illegible] 1 [illegible] 12.00 [illegible] acid) ."1979/ [illegible] 1 [illegible] Selenomethionine [illegible]

[illegible] 1 [illegible] (131I) 131–[illegible] (*x* mci) [illegible] *x* [illegible] 1 [illegible] *y* [illegible] 131–[illegible] :[illegible]

[illegible] 1 [illegible] 131–[illegible] *x/y*

.([illegible]) [illegible] purity [illegible] ."Specific activity [illegible] "activity [illegible] "specific radioactivity

Radionuclidic purity [illegible]

[illegible]

[illegible] impurity [illegible] xenon–131m [illegible] 131–[illegible]

[illegible] .(bequerels [illegible] curies [illegible]) [illegible] 1 [illegible] 125–[illegible] (99mci) [illegible] 99 [illegible] 125–[illegible] .%99 [illegible] 126–[illegible] 126 [illegible] 125–[illegible]

[illegible] %1 [illegible] 126-[illegible] 30 [illegible] .reference hour [illegible]

(identities [illegible]) [illegible] detector [illegible] gamma scintillation spectrometry [illegible]

Radiochemical purity [illegible]

[illegible] .stated [illegible]

[illegible] (^{57}Co) [illegible] 57– [illegible] %99 [illegible] %99 [illegible] (^{57}Co) [illegible] (^{57}Co) [illegible]

[illegible] identical chemical [illegible] isotopic [illegible] istopic [illegible] .form [illegible]

[illegible]

Production and handling of Radiopharmaceuticals [illegible]

[illegible]

Carriers [illegible]

[illegible] isotopic [illegible] *Carrier* [illegible] dispensing [illegible] processing [illegible] non-isotopic [illegible] "Natrii Phosphatis (32P) Injecto" [illegible] .(technetium-99m)m99 [illegible] rhenium [illegible]

[illegible] .*Carrier-free* [illegible]

Detection and Measurement [illegible]

[illegible] electron capture [illegible] .isomeric transition [illegible] $\beta-$ [illegible] (4 [illegible]) [illegible] .(Positrons [illegible] $\beta+$ [illegible] .X-rays [illegible] X-rays [illegible] .(i · t) [illegible] 2 [illegible] .(e.c) [illegible] .0.511MeV [illegible]

[illegible] (1 [illegible])

[illegible]

electronic scaling [illegible] sensing unit [illegible] .device [illegible] Geiger-Müller [illegible] .solid-state semiconductor [illegible]

الجدول 1: المُميِّزات الفيزيائية للنوكليدات المُشعَّة

النُوَيْدَة	مدة العُمُر النِّصفي[a]	نمط التلاشي[b]	طاقات الجسيم واحتماليات الانتقال		الانتقالات الكَهْرطيسية		
			الطاقة Mev	احتمالية الانتقال	طاقة الفوتون MeV	الفُوتونات المُنبثقة	الانتقاليات المنتقلة داخلياً
Cesium–137 سيزيوم –137	30.1a	β–	0.512	94.6%			
			1.174	5.4%			
					Via 2.6mim 137mBa		9.5%
					0.662	85.1%	
					0.032–0.038	8% (Ba K X –rays)	
Chromium –51	27.7d	e.c		100%	0.320	9.83%	
كروم –51					0.005–0.006	~22% (V K X –rays)	
Cobalt –57	270 g	e.c		100%	0.014	9.4%	78.0%
كوبالت –57					0.122	85.2%	2.0%
					0.136	11.1%	1.5%
					0.570	0.02%	
					0.692	0.16%	
					أخرى	كثافة منخفضة	
					0.006 – 0.007	~55% (Fe K X–rays)	
Cobalt –58	70.8 d	β^+	0.475	15.0%	0.511	من β^+	
كوبالت –58		e.c		85.0%	0.811	99.4%	
					0.864	0.7%	
					1.675	0.5%	
					0.006–0.007	~ 26% (Fe K X–rays)	

(a) μs = مكروثانية؛ ms = ميلي ثانية؛ s = ثانية؛ min = دقيقة؛ h = ساعة؛ d = يوم؛ a = سنة

(b) e.c = التقاط إلكترون؛ it = انتقال تصاوغي

Cobat -60	5.27a	β–	0.318	99.9%	1.173	99.86%	0.02%
كوبالت –60			1.491	0.1%	1.333	99.98%	0.01%
					أخرى	<0.01%	
Gallium	78.3h	e.c		100%	0.091	3.6%	0.03%
غاليوم					0.185	23.5%	0.4%
					0.209	2.9%	0.02%
					0.300	16.7%	0.06%
					0.394	4.4%	0.01%
					0.494	0.1%	
					0.704	0.02%	
					0.795	0.06%	
					0.888	0.17%	
					0.0008 – 0.010	43% (Zn K X –rays)	
					via 9.2μs ^{67m}Zn		
					0.093	37.6%	
					0.008 –0.010	13% (Zn K X –rays)	
Gold –198	2.70d	$β^-$	0.285	1.32%	0.412	95.45%	4.3%
ذهب –198			0.961	98.66%	0.676	1.06%	0.03%
			1.373	0.02%	1.088	0.23%	
Gold – 199	3.13d	$β^-$	0.25	21%	0.050	0.3%	3.5%
ذهب –199			0.29	72%	0.158	39.6%	36.4%
			0.45	7%	0.208	8.8%	8.3%
					0.69–0.083	~ 18% (Hg K X–rays)	
Indium –111	2.81d	e.c		100%	0.172	89.6%	10.4%
إنديوم –111					0.247	94.0%	6.0%

تابع الجدول 1: المُمَيِّزات الفيزيائية للنوكليدات المُشعَّة

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			الطاقة Mev	احتمالية الانتقال	طاقة الفوتون MeV	الفُوتونات المُنبثقة	الانتقاليات المنتقلة داخلياً
Indium –113	99.5min	i.t		100%	0.392	64.9%	35.1%
إنديوم –133					0.024 –028	24% (In K X–rays)	
Iodine –123	13.2h	e.c		100%	0.159	83.0%	16.3%
اليود –123					0.347	0.10%	
					0.440	0.35%	
					0.506	0.26%	
					0.529	1.05%	
					0.539	0.27%	
					0.027–0.032	~ 86% (Te K X–rays)	
Iodin–125	60.2d	e.c		100%	0.035	7%	93%
اليود –125					0.027–0.032	138% (Te K X–rays)	
Iodin –126	13d	β^-	0.38	3%	0.389	32%	0.5%
اليود –126			0.88	30%	0.491	2%	
			1.27	15%	0.511	من β^+	
		β^+	0.46	~0.1%	0.666	30%	0.1%
			1.1	~0.4%	0.754	4%	
		e.c		51.5%	0.880	0.8%	
					1.420	0.3%	
					أخرى	<0.1% each	
					0.027 – 0.032	~38% (Te K X–rays)	

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Iodine −131	8.06d	β⁻	0.247	1.8%	0.080	2.4%	3.8%
اليود −131			0.304	0.6%	0.284	5.9%	0.3%
			0.334	7.2%	0.364	81.8%	1.7%
			0.806	0.7%	0.723	1.8%	
		1.3% of ^{131}I decaays via 12d ^{131m}Xe					
(Xenon −131m)		i.t		100%	0.164	2%	98%
الزينون −131 m					(m131-بتلاشيات الزينون	النسب المئوية المتعلقة)	
Iodine −132	2.29h	β⁻	0.84	16.0%	0.506	5.0%	
اليود 132			1.01	3.5%	0.526	16.0%	0.2%
			1.07	6.5%	0.621	2.0%	
			1.09	3.0%	0.630	13.7%	0.1%
			1.10	2.6%	0.651	2.7%	
			1.26	2.9%	0.668	98.7%	0.4%
			1.29	18.4%	0.670	4.9%	
			1.57	10.8%	0.672	5.2%	
			1.72	12.7%	0.727	6.5%	
			2.24	20.2%	0.773	76.2%	0.3%
			أخرى	3.4%	0.810	2.9%	
					0.812	5.6%	
					0.955	18.1%	
					1.136	3.0%	
					1.295	2.0%	
					1.372	2.5%	
					1.399	7.1%	
					1.433	1.4%	
					1.921	1.2%	
					2.002	1.1%	
					أخرى	<1.5%	

تابع الجدول 1: المُمَيِّزات الفيزيائية للنوكليدات المُشعَّة

النُّوَيْدَة	مدة العُمْر النِّصفي[a]	نمط التلاشي[b]	طاقات الجسيم واحتماليات الانتقال		الانتقالات الكَهْرطيسية		
			الطاقة Mev	احتمالية الانتقال	طاقة الفوتون MeV	الفُوتونات المُنبثقة	الانتقاليات المنتقلة داخلياً
Iron –55	2.69 d	e.c			0.006	~28%(Mn K X–rays)	
الحديد –55							
Iron – 59	44.6 d	β^-	0.084	0.1%	0.143	0.8%	
الحديد –59			0.132	1.1%	0.192	2.8%	
			0.274	45.8%	0.335	0.3%	
			0.467	52.7%	0.383	0.02%	
			1.566	0.3	1.099	55.8%	
					1.292	43.8%	
					1.482	0.06%	
Mercury –197	64.4h	e.c		100%	0.077	19.2%	80.7%
الزئبق –197					0.192	~1.1%	0.9%
					0.268	~0.1%	
					0.067 – 0.080	~7.% (Au K X–rays)	
Mercury–197m	24 h	e.c		635%	0.134	31.8%	61.7%
الزئبق –197		i.t		93.5%	0.165	0.3%	93.2%
					0.067 – 0.083	36% (Au/ Hg K X–rays)	
					Via 7.8s 197m Au		
					0.130	0.5%	6%
					0.279	5.0%	1.5%
					0.409	<0.005%	
					0.67–0.080	~2% (Au K X–rays)	
		Daughter 197Hg					
		الابنة 197Hg					

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Mercury–203	46.6 d	β^-	0.212	100%	0.279	81.5%	18.5%
الزئبق –203					0.071–0.085	12.5% (T1 K X–rays)	
Molybdenum–99	66.2 h	β^-	0.454	18.3%	0.041	1.2%	4.8%
موليبدينوم –99			0.866	1.4%	0.141	5.4%	0.7%
			1.232	80%	0.181	6.6%	1.0%
			أخرى	0.3%	0.366	1.4%	
					0.412	0.02%	
					0.529	0.05%	
					0.621	0.02%	
					0.740	13.6%	
					0.778	4.7%	
					0.823	0.13%	
					0.961	0.1%	
					Via 6.02 h 99^mTc in equilibrium		
					0.002	~0%	93.9%
					0.141	83.9	10.0%
					0.143	0.03	0.8%
Phosphorus – 32	14.3 d	β^-	1.709	100%			
الفُسفور –32							
Selenium – 75	118.5 d	e.c		100%	0.066	1.1%	0.3%
سيلينوم –75					0.097	2.9%	3.0%
					0.121	15.7%	0.7%
					0.136	54.0%	1.6%
					0.199	1.5%	
					0.265	56.9%	0.4%
					0.280	18.5%	0.2%
					0.401	11.7%	
					أخرى	<0.05% each	
					0.010 –0.012	~50% (As K X–rays)	

تابع الجدول 1: المُمَيِّزات الفيزيائية للنوكليدات المُشعَّة

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					Via 16.4ms ^{75m}As		
					0.24	0.03%	5.5%
					0.280	5.4%	
					0.304	1.2%	0.1%
					0.010 –0.012	~2.6% (As K X–rays)	
Technetium–99m تيكنيشيوم –99m	6.02 h	i.t		100%	0.002	~0%	99.1%
					0.141	88.5%	10.6%
					0.143	0.03%	0.87%
		Daughter ^{99}Tc الابنة ^{99}Tc					
Thallium –201 ثاليوم –201	73.5 h	e.c		100%	0.031	0.29%	10.1%
					0.32	0.25%	9.6%
					0.135	2.9%	8.9%
					0.166	0.13%	0.2%
					0.167	8.81%	16.0%
Tin – 113 القصدير –113	115 d	e.c		100%	0.255	2.1%	0.1%
					0.021 –0.028	73%(In K X–rays)	
		Daughter ^{113m}In					
Tritium (^{3}H) تريتيوم (^{3}H)	12.35 d	β^{-}	0.0186	100%			

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(b) e.c = التقاط إلكترون؛ it = انتقال تصاوغي

Xenon –131m	11.9 d	i.t		100%	0.164	2%	98%
الزّينون –133					0.029 –0.035	~52% (Xe K X–rays)	
Xenom –133	5.25 d	β^-	0.266	0.9%	0.080	0.4%	0.5%
الزّينون –m133			0.346	99.1%	0.081	36.6%	63.3%
					0.160	0.05%	
					0.030–0.036	~46% (Cs K X –rays)	
Xenon –131m	2.26 d	i.t		100%	0.233	8%	92%
الزّينون –133					0.029 –0.035	~59% (Xe K X–rays)	
		Daughter ^{133}Xe					
Ytterbium –169	30.0 d	e.c		100%	0.021	0.21%	12.3%
الإيتربيوم –169					0.063	45.16%	50.4%
					0.094	0.78%	12.3%
					0.110	3.82%	56.2%
					0.117	0.04%	
					0.118	1.90%	3.2%
					0.131	11.42%	13.5%
					0.177	17.31%	17.7%
					0.198	26.16%	25.7%
					0.240	0.12%	
					0.261	1.74%	
					0.308	11.04%	0.7%

[illegible] beta emitters [illegible]

[illegible] scaler [illegible] pulse-height selector [illegible] Voltage [illegible] readout [illegible] ratemeter [illegible] counters [illegible] x–rays [illegible]

[illegible] (4π–counting) π4 [illegible] emissions [illegible] 2π–steradians [illegible] π2 [illegible] (2π counting) π2 [illegible] (fixed geometry) [illegible] reproducibility [illegible] π4– [illegible] π4 [illegible] π4 [illegible] π4 [illegible] –π4 [illegible]

[illegible]

[illegible] *background activity* [illegible]

corrected count rate R

$$R = \frac{r}{1 - r\tau}$$

r ... τ ... resolving time ... counts ... 10000 ... %1.

Absorption

absorbers ... beta emitters ... x-rays ... 125– ...

"thickness" ... (μ) ... ^{2} ... (2 ...

Method

"Natrii Phosphatis (^{32}P) Injectio" ...

half–thickness:

6 ... ^{2} 20 ... 10 ... ^{2} 800 ...

[illegible] logarithm [illegible] (800 [illegible]) [illegible] function [illegible] (1.205 [illegible])

[illegible] 20 [illegible] (t_2, t_1) [illegible] (μ) [illegible]

$$\mu = \frac{1}{t_2 - t_1} \ln \frac{A_{t1}}{A_{t2}}$$

[illegible] A_{t_2} [illegible] A_{t_1} [illegible] t_2 [illegible] t_1 [illegible] half–thickness [illegible] t_2 [illegible] t_1 [illegible]

[illegible] 32– [illegible]

[illegible] %5± [illegible]

[illegible] (0) [illegible]

Radiation spectrometry [illegible]

Crystal scintillation spectrometry [illegible]

[illegible] scintillators [illegible] scanning [illegible] plus– height analyser [illegible]

[illegible] photoelectric peaks [illegible]

[illegible] coincidence summing [illegible] backscatter [illegible] Compton [illegible] fluorescent X-rays [illegible]

[illegible] discriminator [illegible] shielding [illegible]

[illegible] 125– [illegible] photoelectric peaks [illegible]

Semiconductor detector spectrometry [illegible]

[illegible] solid state detectors [illegible] peaks [illegible]

[illegible] valence [illegible] electron-hole pair [illegible] conduction band [illegible] band lithium-drifted [illegible] %5.9 [illegible] 60– [illegible] 1.33Mev [illegible] %33 [illegible] germanium [illegible] 7.6–cm ×7.6–cm

Liquid scintillation counting [illegible]

[illegible] ^{3}H [illegible] ^{14}C [illegible] ^{35}S [illegible] X– [illegible]

[illegible] discriminators [illegible] %60 [illegible] ^{14}C [illegible] %95 [illegible] ^{3}H [illegible]

[illegible] 2,5–diphenyloxazlole [illegible] *p*-terphenyl [illegible] Dimethyl-) 1.4-di[2-(4-methyl-5-phenyloxazole)] benzene [illegible] (POPOP [illegible] quenching [illegible]

[illegible]

Radiation Shielding

[illegible] background radiation [illegible]

[illegible] Bremsstrahlung [illegible] monoenergetic [illegible] X– [illegible] Bremsstrahlung

[illegible] Bremsstrahlung [illegible]

[illegible] exponential [illegible] half–value layers [illegible] %1 [illegible] 7 [illegible] handling [illegible] reference [illegible] multimillicurie [illegible] remote–handling devices [illegible].

[illegible]

Determination of Radionuclidic Purity

[illegible] gamma emitters [illegible] gamma spectrometry [illegible]:

(a) [illegible]

(b) [illegible] detectors [illegible] resolution [illegible] (Ge:Li) [illegible].

(c) [illegible] fluorescent [illegible] coincidence summation [illegible] backscatter [illegible] X–rays.

[illegible]

[illegible] isotopic [illegible]

Requirements for radionuclidic purity [illegible]

[illegible]

1. [illegible]

2. [illegible] 203– [illegible] 197– [illegible]

[illegible] batches [illegible]

[illegible]

Determination of Radiochemical Purity

[illegible] (76-72 [illegible]) [illegible] artifacts [illegible] (99-96 [illegible]) [illegible] carriers [illegible]

[illegible]

[illegible]
Determination of Chemical Purity

[illegible] Preparation [illegible]

[illegible] 131– [illegible]

[illegible]

[illegible]
Tests for Sterility and Pyrogens

[illegible] Tests for Sterility [illegible] release [illegible] retrospectively.

Sterility tests [illegible]

[illegible] indicators [illegible] sterilizers [illegible]

Pyrogen tests [illegible]

[illegible] (155-153 [illegible]).

[illegible]

Addition of Bacteriostatic Agents

[illegible]

[illegible]

Other Requirements

[illegible]

[illegible]

Expiry Date

[illegible]

[illegible]

Labelling

[illegible] (vial [illegible]):

1. [illegible]
2. [illegible]
3. [illegible]
4. [illegible] 30 [illegible]
5. [illegible]
6. [illegible]
7. [illegible]
8. [illegible]

[illegible] (mci) [illegible] MBq [illegible] 1 [illegible].

[illegible].

[illegible]

Storage

[illegible]

POWDER FINENESS AND SIEVES [illegible]

A. Powders [illegible]

[illegible] (µm) [illegible].

[illegible]:

[illegible] 2000 [illegible] .(2000/355) *Coarse powder* [illegible]
.355 [illegible] %40 [illegible]

[illegible] .(710/250) *Moderately coarse powder* [illegible]
.250 [illegible] %40 [illegible] 710 [illegible]

[illegible] .(355/180) *Moderately fine Powder* [illegible]
.180 [illegible] %40 [illegible] 355

.180 [illegible] .(180) *fine powder* [illegible]

.125 [illegible] .(125) *very fine powder* [illegible]

[illegible]

Sieves [illegible] **.B**

[illegible]
.(µm) [illegible]

.(2 [illegible]) [illegible]

Wire mash sieves [illegible] **.2** [illegible]

[illegible] **Approximate screening area (%)**	[illegible] **Nominal diameter of wire (mm)**	[illegible] **Nominal size of aperture (mm)**	**Number** [illegible] **of sieve (µm)**
2000	2.00	0.90	48
710	0.710	0.450	37
500	0.500	0.315	38
355	0.355	0.224	38
250	0.250	160	37
212	0.212	0.140	36
180	0.180	0.125	35
150	0.150	0.100	36
125	0.125	0.090	34
90	0.090	0.063	35
75	0.075	0.050	36
45	0.045	0.032	34

ÈȄȄŎǪöä ǦȶȚǺȵ øǺȄȞȵ ȸȵ Ǻŏ ɂȍȥʦ Ȭ̄Ÿǩ ƙǽ ȸȵ ɄÊȽəø ŌȮȊǽ ǴȄȮŸÊöä ŌǹǺǺʦ ā ȥŐǭ ǴȞʊǪǺö ɄƧɼ ȴǄΣ ɂȬ̄ʮ
.ISO – standard 565-1972 ǦȄôȿǼöä

PHYSICOCHEMICAL METHODS ƕĭəƑĭǅĭǀǁɛ ƕĭəƑĭƦĭƻǁɛ 5ƥƯǁɛ

CHROMATOGRAPHY [illegible]

mobile [illegible] solute [illegible] partition [illegible] adsorption [illegible] .stationary [illegible] coated ([illegible]) [illegible] .gel permeation [illegible] ion exchange [illegible] (solid support [illegible]

[illegible] separation [illegible] detection [illegible] identification [illegible] ."chromatographic method of analysis [illegible]

[illegible] planar methods [illegible] (paper and thin-layer chromatography [illegible]) adsorbent [illegible] .(high performance liquid chromatography [illegible] solutes [illegible]

[illegible] identification [illegible] separations [illegible] determination [illegible] detection [illegible]

[illegible]

[illegible]

Thin –layer Chromatography

[illegible] 0.24 [illegible] adsorbent [illegible] (capillary action [illegible] .plastic [illegible] partition [illegible] adsorption [illegible] Silica gel [illegible] cellulose [illegible] alumina [illegible] Kieselguhr [illegible] prepared layer [illegible] basic [illegible]

[illegible] identification [illegible] standard [illegible]

[illegible] R_f [illegible]

[illegible]

[illegible] chromatogram [illegible]

[illegible] (adsorbent surface [illegible]

[illegible] artifacts.

[illegible] silica gel [illegible]

[illegible]

[illegible] precoated [illegible]

[illegible]

[illegible]

- [illegible] spreading [illegible]
- [illegible] 200 [illegible]
- [illegible]

[illegible] slurry [illegible] 0.25 [illegible] 110° [illegible] 30 [illegible] (5-2) [illegible]

[illegible] 1 [illegible] 5 [illegible]

Method [illegible]

[illegible] 50-60% [illegible] 4 [illegible] micropipette [illegible] 1.5 [illegible] 1.5 [illegible] 1.5 [illegible] 15 [illegible]

[illegible]

[illegible]

Paper Chromatography

[illegible] stationary [illegible]

[illegible] Corrosive [illegible]

[illegible] R_r [illegible] R_f [illegible] descending [illegible] ascending [illegible]

RECOMMENDED PROCEDURE [illegible]

Descending paper chromatography [illegible]

[illegible] 1.5 [illegible] 2.5 [illegible] grain [illegible]

Method [illegible]

[illegible] 3-2 [illegible]

[illegible] 24 [illegible] %50 [illegible] micropipette [illegible] 10 [illegible] 3 [illegible] 90 [illegible]

Ascending paper chromatography [illegible]

[illegible] 2.5 [illegible]

Method [illegible]

[illegible] 3-2 [illegible] 24 [illegible] %50 [illegible] 3 [illegible] 10 [illegible] 3 [illegible]

[illegible] 90 [illegible]

[illegible]

Column Chromatography

solid [illegible] :adsorption column chromatography [illegible] silicic acid [illegible] suupport [illegible] slurry [illegible] (kieselguhr [illegible] adsorbent [illegible] effluent [illegible] (eluate [illegible]

[illegible] :partition column chromatography [illegible] solid adsorbent [illegible] elution [illegible] siliceous [illegible] earth [illegible] reverse-phase [illegible] paraffins [illegible] silanizing [illegible]

[illegible]

[illegible] distribution coefficient [illegible] dissociate [illegible]

[illegible] *Ion-exchange chromatography* [illegible]

[illegible] ion-exchange resin [illegible]

[illegible] counter-ion [illegible] H^+/Na^+ [illegible]

$$RSO_3H + Na^+ \leftrightarrows RSO_3Na + H^+$$

[illegible] Cl^-/OH^- [illegible]

$$R'N(CH_3)_3\,OH + Cl^- \leftrightarrows R'N(CH_3)_3Cl + OH^-$$

[illegible] 1 [illegible] 5 [illegible] 2 [illegible] stoichiometric [illegible] (%300 – 200) [illegible]

Treatment of the ion-exchange resin and preparation of the [illegible] *column* [illegible] 24 [illegible] (~80 [illegible]) [illegible] effluent [illegible] 1 [illegible] 3 [illegible] TS [illegible] alkalinity [illegible] R [illegible] (~ 70 [illegible]) [illegible]

.neutral [illegible]

[illegible]

[illegible] (~80 [illegible]) [illegible] (~70 [illegible]) [illegible]

[illegible]

High - performance liquid chromatography

Introduction [illegible]

[illegible] (HPLC) [illegible] adsorption [illegible] (HPLC) [illegible] .ions [illegible] size exclusion [illegible] ion exchange [illegible] partition [illegible] HPLC [illegible] stationary phase [illegible] Mobil phase [illegible] solutes [illegible] distribution [illegible]

[illegible] purity [illegible] HPLC [illegible] enantiomeric composition [illegible] .chiral [illegible]

Apparatus [illegible]

[illegible] injector [illegible] pumping [illegible] detector [illegible] fittings [illegible]

pumping system [illegible]

[illegible] to deliver [illegible] HPLC [illegible]

[illegible] pulse [illegible] "bleeding [illegible]" HPLC [illegible]

[illegible] microprocessor [illegible] (isocratic elution [illegible]) [illegible] (gradient elution [illegible]) flow rate [illegible] (6000psi) [illegible] 42000 [illegible]

Injector [illegible]

[illegible] fixed-loop [illegible] partial filling [illegible] auto-sampler [illegible]

Chromatographic column [illegible]

[illegible] 5 2 [illegible] 500 50 [illegible] 10-5 [illegible] (microbore) [illegible] 2 [illegible] 60 [illegible]

stationary phases [illegible]

[illegible] nonpolar [illegible] polar [illegible] HPLC [illegible] normal-phase [illegible] revered -phase [illegible]

[illegible] HPLC [illegible]:

[illegible] porous graphite [illegible] alumina [illegible] –
[illegible]
[illegible] polymers [illegible] –
[illegible]
[illegible] resin [illegible] –
[illegible]
[illegible] –
[illegible].

[illegible] silanol [illegible] support [illegible] .([illegible] HPLC) [illegible] covalently silyl [illegible] silane [illegible] active sites [illegible] derivatives [illegible] bonded phase.
:[illegible]

	Common bonded phases [illegible]	
C_9	$Si-(CH_2)_7-CH_3$	octyl [illegible]
C_{19}	$Si-(CH_2)_{17}-CH_3$	octadecyl [illegible]
C_6H_5	$Si-(CH_2)_3-C_6H_5$	phenyl [illegible]
CN	$Si-(CH_2)_3-CN$	cyanopropyl [illegible]
NH_2	$Si-(CH_2)_3-NH_2$	aminopropyl [illegible]
	$Si-(CH_2)_3-OCH(OH)-CH_2-OH$	diol [illegible]

[illegible] enantiomers [illegible] .(chiral [illegible] ..albumins [illegible].
[illegible] 8.0-2.0 [illegible] styrene vinylbenzene copolymer [illegible].

[illegible] HPLC [illegible]
[illegible]
[illegible] 10 [illegible] 3 [illegible] porosities [illegible] carbon-loading [illegible] residual silanol [illegible] "end-capped" [illegible] tailing of peaks

Mobile phase [illegible]

[illegible] retention [illegible] analyte [illegible]

[illegible] lipophilic [illegible] modifiers [illegible]

[illegible] 0.45 [illegible] sonification [illegible]

[illegible] stabilizers [illegible] buffers [illegible] organic modifier [illegible]

[illegible] counter–ion [illegible]
[illegible] chiral selector [illegible] ion-pair
.achiral [illegible]

[illegible] *Connecting tubing and fitting*

[illegible] injectors [illegible] detectors. [illegible] "zero-dead volume (ZDV) type [illegible] 0.25 [illegible] capillary [illegible] band spreading [illegible].

[illegible] *Detectors*

[illegible] (UV/vis) [illegible] fluorescence spectrophotometers [illegible] chromophoric [illegible] analyte [illegible] (UV/vis) [illegible].

[illegible] diode array [illegible] UV/vis [illegible] UV/vis [illegible] absorbance [illegible] eluted peaks [illegible] spectral homogeneity [illegible] validation.

[illegible] pre-column [illegible] post-column. ([illegible]).

[illegible] *Date collection devices*

[illegible] integrators [illegible] signals [illegible]

[illegible]

[illegible] computers [illegible]

[illegible] thresholds [illegible] peak [illegible] integrator [illegible] parameters [illegible] baseline separations [illegible] valley-to-valley [illegible]

[illegible] (HPLC) [illegible] %0.05 [illegible]

System suitability [illegible]

[illegible] resolution [illegible] porosity [illegible] carbon loading [illegible] end-capping [illegible]

Efficiency (N) [illegible]

[illegible] *theoretical plates* (*N*) [illegible]:

$$N = 5.54 \frac{t_R^2}{W_h^2}$$

[illegible]

t_R = [illegible] perpendicular [illegible]

W_h = [illegible] t_R.

(N') ÀǪţÅæ ǴÀÀŢÀöä ďzζÛÊöä åÆʒ ȸʒ ƘǴǑǪöä ȸÒζ

$$N' = \frac{N}{l}$$

Ǭǵ

.ÀǪţÅæ ǺèÅÕɳ åζȶǶöä òζù = l

Capacity factor (mass distribution ratio D_m) (D_m ÛǴǑǪÒöä ţǺζǩ ǴǴÊɸ) ǴǶÊöä Ōɳʒ

:ƃÀǪöä ζƕÀöä ʔǓʒ ǴǓǪÒöä ţǺζǩ ǴǴÊɸ şǓ ǴǶÊöä Ōɳʒ åǼƕł

$$D_m = \frac{\text{ÀŌǪÊţä øζÛöä Ž ǴǓƐǓƩä ǴƐȶŏ}}{\text{ōÀƕǪţä øζÛöä Ž ǴǓƐǓƩä ǴƐȶŏ}}$$

:ǴƐöÀǪöä Ǵ8ƐÔöä ÿäÆÅǪèÅæ āäÀÎǪèɍä ÙÛƲ ȸɳ ȼǩÊǵ ȸÒζş ǴǓƐǓƩä âÅǪǵä ŌɳÅǶöä äØŁ åǼʒ

$$D_m = \frac{(t_R - t_M)}{t_M}$$

Ǭǵ

ǴǓƐǓƩä âÅǪǵä ȸɳà = t_R

ʔŌǪÊȟƳöä ɟζÒţä âÅǪǵä ȸɳà = t_M

ʔǓʒ ÀǫǘǩɈǓȸÒζ ɄøǪöä ÛƐÀØţä (ǴƧǴDZ) ǴɳÆŌɳ ȸɳ ǴǴÀɕ ǴζÅÛÎöä ǥşøæ ɈǓʔǓʒ ǴȒÀÅÀţä D_m ǴȶƐɕ òÆǩ

.ÿÅȶǪĿɍä ǧäæ ǥşøØǓö Åŏ ʔòζƶ 1 ƻÀ8Ôöä D_m ǴȶƐɕ ÅɳǓ .ǴƐəÀŌǪɸɍä

ɄøǴÊÀöä ÆƐōÀǪöä şǓ ǴǴÊÀöä ŌÀÆǴǩ òƳǹ ȸɳ ÛǺÀøşÀɝ Ōöæ ɈÅō äæǓ ÛøÅǪǹɍä ǥåÅɳ âÅǪǵä ȸɳà Àƕ8ł ɈǓȸÒζ

åζȶʒ Ž ǺÀÔɕ ÀǯōǓ âÅǪǵä ȸɳà ƃǓ ǴƐǴÛɕ ÀǯōɈä ÆÀØţä ǴǴÊɸ ǥåÀà ȻåǘǩÛǺɳζȶʒ .ōÀƕǪţä øζÛöä Ž ǧÅǴÀØȶƳö

.âζÒǶöä øζÛöä åζȶʒ Ž òζùǓ âÅǪǵä ȸɳà ƃǓş ȻåÀǶöä øζÛöä

Resolution factor ÂǺţä Ōɳʒ

:ǴƐöÀǪöä Ǵ8ƐÔöä ÿäÆÅǪèÅæ āäÀÎǪèɍä ÙÛƲ Ž ȼÊÀɸ ţÅÀǩøɍä ÅȶƬ ƙǩşøæ ƙä ÂǺţä ÆÊƕł ɈǓȸÒζ

$$R_s = \frac{1.18(t_{R2} - t_{R1})}{(W_{b1} + W_{b2})}$$

Ǭǵ

.ƙǩşøØöä ȸɳ Ōŏ ʔÔɕǓ ȸɳ òàÅÀöä ÆǶÅǶţş ȸŌƩä ǴÛŌɸ ƙä ǵÆʒÅŌöä Ùǹ ÅǪζÅÊɳ şǓ âÅǪǵä ÀÅɳà ÅƵ = t_{R2}ş t_{R1}

ƙÊƐŌɳ ÛǥşøØöä ţÅÀǩøä ƵÔǪÀɳ Æʒ ƙÀƐǶţä ǴɕƳǶöä ɄøǩǶæ peaks widths ƙǩşøØöä ÅʒÅÊǥä ÅƵ = W_{b2}ş W_{b1}

[illegible] t_{R1} [illegible] t_{R2}.

1.5 [illegible] baseline separation [illegible] R_s [illegible]

Relative retention [illegible]

[illegible] (r) [illegible]:

$$r = \frac{t_{R2} - t_M}{t_{R1} - t_M}$$

[illegible]

t_{R2} = [illegible] peak of interest

t_{R1} = [illegible] reference peak

t_M = [illegible] unretained component

symmetry factor [illegible]

[illegible]:

$$A_s = \frac{W_x}{2d}$$

[illegible]

W_x = [illegible] %5 [illegible].

d = [illegible] leading edge [illegible] %5 [illegible] W_x.

[illegible] As [illegible] 2 [illegible] silanol [illegible] talling [illegible].

Repeatability [illegible]

[illegible] assay [illegible] relative standard deviation [illegible] %2.0.

[illegible] "Related substances [illegible]"
[illegible] %5.0 [illegible]
.%1.0 [illegible]

Recommended procedure [illegible]

[illegible] (30 [illegible]) [illegible] %50 [illegible] full-scale deflection [illegible] system suitability [illegible]
[illegible] (4-2 [illegible]) [illegible]
normalization [illegible] response factor [illegible] (UV/vis) [illegible] HPLC [illegible] detection [illegible] (%20± [illegible]) [illegible] reciprocals [illegible]

[illegible] blank [illegible]

[illegible]

[illegible]

Gas Chromatography

[illegible] adsorbent [illegible] gas - solid [illegible] carbon [illegible] silica gel [illegible] alumina [illegible] (chromatography [illegible] firebrick [illegible] diatomaceous earth [illegible] (gas-liquid chromatography [illegible]) [illegible] "open-tube [illegible]" [illegible] (capillary [illegible] polyaromatic porous beads [illegible] (*K*) [illegible]

$$K = \frac{[illegible]}{[illegible]}$$

[illegible] solute [illegible] *K* [illegible] detector [illegible]

[illegible] detectors [illegible] .conductivity [illegible] flame [illegible]
[illegible]
[illegible] .hologenated [illegible]
[illegible]
[illegible] mass [illegible]
[illegible]
[illegible]
[illegible]
[illegible] 300 [illegible]
[illegible]
[illegible] "temperature programming
[illegible] 3 [illegible] 0.5 [illegible]
[illegible] 100 [illegible] 10 [illegible]
[illegible] 5 [illegible] 2 [illegible] 1.5 [illegible]
[illegible]
60-) [illegible] 250 [illegible] 75 [illegible]
[illegible] 200
[illegible]
[illegible] peak tailing [illegible]
[illegible] silanizing [illegible]
[illegible] inlet [illegible]
[illegible] macrogols [illegible]
[illegible]
[illegible] polysiloxanes [illegible]
[illegible]
[illegible] "Column bledding [illegible]
[illegible]

[illegible]

[illegible] internal standard [illegible] noralization [illegible] integrator [illegible] linear [illegible] planimeter [illegible] area [illegible] height [illegible] tangentially [illegible] base line [illegible]

[illegible] internal standard [illegible] (1 [illegible]) [illegible] 3 [illegible] A [illegible] (2 [illegible]) [illegible] retention time [illegible] allowance [illegible] (3 [illegible]) [illegible] .coincidence peak

[illegible] A [illegible] data [illegible] .(1 [illegible] B [illegible]

[illegible] normalization [illegible]

RECOMMENDED PROCEDURE [illegible]

[illegible] pre-column [illegible]

[illegible] $16 tR2/Ly2$ [illegible]

[illegible] base line [illegible] (mm [illegible]) [illegible] t_R

[illegible] perpendicular

[illegible] (m [illegible]) [illegible] L

[illegible] (mm [illegible]) [illegible] Y

eluted [illegible]

Method [illegible]

[illegible] 1 [illegible] 3 [illegible] 2 [illegible] 1.05 [illegible] 0.95 [illegible] symmetry factor [illegible]

[illegible]

[illegible] $y_x/2A$ [illegible]:

[illegible] width [illegible] y_x

[illegible] leading edge [illegible] perpendicular [illegible] A [illegible].

[illegible] resolution [illegible] $2(t_{Rb} - t_{Ra})/(y_a + y_b)$ [illegible] 1.0 [illegible]:

t_{Ra} [illegible] t_{Rb} [illegible] perpendiculars [illegible]

y_a [illegible] y_b [illegible].

DETERMINATION OF pH [illegible]

[illegible] (pH) [illegible].

[illegible] negative logarithm [illegible] activity coefficient [illegible] 1 [illegible].

[illegible] glass electrode [illegible] buffered [illegible].

[illegible]

[illegible]

[illegible] **pH Scale** [illegible]

[illegible] X [illegible] E_x [illegible]

Pt | H_2 | solution [illegible] X | 3.5 mol/1 [illegible] KCl | [illegible]

[illegible] E_s [illegible]

Pt | H_2 | solution [illegible] S | 3.5 mol/1 [illegible] KCl | [illegible]

[illegible] bridge solutions [illegible]

(S) [illegible] S [illegible] (X) [illegible] X [illegible]

$$pH(X) = pH(S) + \frac{E_x - E_s}{2.3026\,RT/F}$$

[illegible] R [illegible] T [illegible] F [illegible] Faraday.

[illegible] dimensionless number.

[illegible] 2.3026 *RT/F* [illegible]

[illegible] (°C)	2.3026 RT/F (mv [illegible])
10	56.18
15	57.17
20	58.17
25	59.16
30	60.15

[illegible]

Potentiometric Determination of pH

[illegible]

[illegible] glass [illegible]

[illegible] hydrogen [illegible]
[illegible] reproducibility [illegible] ±0.005 [illegible]
[illegible] 10-2 [illegible].

[illegible] 3 [illegible]

[illegible]	[illegible]				
	20°	25°	30°	35°	40°
TS [illegible]	1.675	1.697	1.683	1.688	1.694
TS [illegible]	–	3.557	3.552	3.549	3.547
TS [illegible]	4.002	4.008	4.015	0.024	4.035
TS [illegible] 6.8 [illegible]	6.881	6.865	6.853	6.844	6.838
TS [illegible] 7.4 [illegible]	7.428	7.413	7.400	7.389	7.380
TS [illegible]	9.225	9.180	9.139	9.102	9.068
TS [illegible]	10.062	10.012	9.966	9.925	9.889

[illegible] 2.3025 *RF/T* [illegible] ±0.005 [illegible] (3 [illegible]).

Calibration of apparatus [illegible]

[illegible] (±0.04 [illegible]) [illegible] ±0.04 [illegible].

[illegible] cub [illegible] 0.04± [illegible] 0.04± [illegible] 3 [illegible] 6 [illegible] 0.1 [illegible] 0.05± [illegible] calomel [illegible] 2 [illegible] 2 [illegible] hysteresis

Standard buffer solutions [illegible]

R [illegible] 3 [illegible]

ELECTROPHORESIS [illegible]

[illegible] conducting electrolyte [illegible]

potential [illegible] cm/s [illegible] $cm^2 \cdot V^{-1} \cdot S^{-1}$ 1– [illegible] 1– [illegible] 2 [illegible] v/cm [illegible] 1 [illegible] gradient

[illegible]

[illegible]

[illegible]

Moving Boundary (Free-flow) Electrophoresis

[illegible]

[illegible] refractometry [illegible] conductometry [illegible]

[illegible]

Zone Electrophoresis (Electrophoresis using a Supporting Medium)

[illegible] electro-endosmotic [illegible] carriers [illegible] (Joule [illegible]

[illegible] scanning [illegible] densitometer.

[illegible]

- [illegible] voltage [illegible].
- [illegible] parallelpiped [illegible] airtight lid [illegible] connector [illegible] electrical leads

[illegible] troughs [illegible]

[illegible] centrol lengthwise partition [illegible]

[illegible] .150mA [illegible] 450V D.C [illegible] voltage [illegible]

- [illegible]
- [illegible]

RECOMMENDED PROCEDURES [illegible]

Paper electrophoresis [illegible]

[illegible] 37 [illegible] troughs [illegible] 4.5 [illegible] 38 [illegible] 50 [illegible] 2 [illegible] 5 [illegible]

[illegible] Whatman 3MM [illegible] 13 [illegible]

[illegible] 5 [illegible] 30 [illegible]

[illegible] 1 [illegible] 2.5 [illegible]

[illegible] .cathod ([illegible]) [illegible] anode ([illegible]) [illegible]

[illegible] 1 [illegible] 20V [illegible] marker [illegible]

Electrophoresis on cellulose acetate strips [illegible]

[illegible] 25 [illegible] 23 × [illegible] 10 [illegible] troughs [illegible] 24 [illegible] 17 × [illegible] 2.5 [illegible]

[illegible] 8 [illegible] bands [illegible]

Gel electrophoresis [illegible]

[illegible] 2-1 [illegible]

[illegible] absorbent lint [illegible] wicks [illegible]

[illegible] Joule [illegible]

... inhibition zone ...
... organism ...

PHASE SOLUBILITY ANALYSIS

... (b) ... (a)
... (d) ... (c) ...
... (e) ...
... calculation ... extrapolation ...

Solvents

(1) ... volatility ...
... 150 ... 60 ...

(2) ...

(3) ...

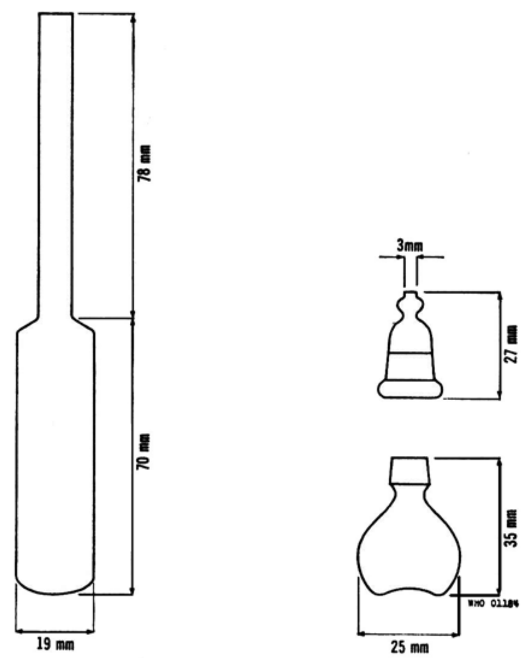
(4) ... 4 ...

.øȦǪÁţä ÆȂØţä Ž ȟ/ŋŸŋ 50

Apparatus ŖƑǋШǁƐ

ǦǪǣȦǭ gøäȂǵ ǦDZøå ȿæ ÿȦþ ğäøȦǦǪǹɍä ȻØŢ ÿÆÁǪÊȂ :*Constant-temperature bath ǦǪǣȦǭ gøäȂǵ ǦDZøå ȿæ ÿȦȶǵ* Æƶ .°ÿ30 ȿǗ °ÿ25 gøäȂΣä ȦǪDZøå gåȦʒ ɁǬǪȂǨ .°ÿ0.1± ȸȶȅ ǒȦǬǪɋɍä ǦǬǦÊȟ gøäȂΣä ǦDZøå ɁŸʒ ǦŢȥȦǂä ɁŸʒ øåȦȩ åȿÂȟ ÛgÆǵäȥöä ǦǬŀȩÆöä Ž gøȿå 50 ā øȦǬȂ Ȧŋ ȷäøȿÆöä ɁŸʒ øåȦȩ horizontal shaft ɄǬȥǗ ȯÆDzǽ ÿȦȶΣä ÂŦDzȽ ȷǗ ɁŸʒ øåȦȩ ÛÆèȦȂŋ ȁäÂŦȟ ɁŸʒ ɃȥǪƷ ȷǗ ÿȦȶɄŸö ȸȮȣ ǬȂÆæ øȦŀÁȭȿ .ampoule ğɍȥǦŋɉä ȬÊȶő Clamps ȖȩŸŋ ɁȂǹǗ gÂŀŦDZ ǦȂǗ ȿǗ ÛğɍȥǦŋɉä ȬÊȶő ȖȩŸŋ Ƀæ shaft ȯÆDzǽ åȿÂȟ ÛgÆǵäȿ ǦŀǭȦǭ ǬȭŽ ȁäÂǪȽä 120-100 ǫäÆǵǗ .ğɍȥǦŋɉä Ž ȷȁäȥǪöä äȦƍq

ÿäÆÁǪèä ȸȮȣ .(2 ǬȮÎöä) Ž ǦȂǣȶŸö ǦǒȦÎŋ Ǭŋ 15 ǦȞè ğäæ ğɍȥǦŋǗ ÿÆÁǪÊȽ *Ampoules ğɍȥǦŋɉä* .ɁȂǹɉä ɄǵäȥȂöä ǬȭŽ ǦȶəŸŋȿ ÆȂȀÊǪŸö ǦŋȿȦǬŋ ȷȥȮǨ ɁȂǹǗ ğȂȿȦǵ



øȥÛöä ǦŀȦǣȿæ ǬŀŸƠ Ž ƙǪŋÆÁÊţä (ȸȣǗ) ǦŀȦǣȿØöä ǦŸDZȥǵȿ (ȀÊȂǗ) ǦöȥǦŋǗ .2 ǬȮÎöä

ǬȮÎöä) ÄŦȚȽ .ȤǣÄDzǪöä – ÆǣȶDzǪöä ǬDZɉ ǦȶəŸŋ ǦŀȦǣȿæ ǬDZäȥǵ ÿÆÁǪÊǨ *Solubility flasks ǦŀȦǣȿØöä ǬDZäȥǵ* .(gåäÆè ʒŋ) ǦȶəŸŋ ǦŸDZȥǵ (2

.ÿäȀȡȿȀȮŋ 1± ȸȶȅ ȷäȿɉä ǬȭŽ ʒǬǨ ȷǗ ȷȦȶȒö ǦǦèȦȂŋ ǦǬȂȀǜȿ ȴəŸŋ ȷäÂǣŋ ÿÆÁǪÊȽ *Balance ȷäÂŀţä*

[illegible]

system composition [illegible]

[illegible] marked [illegible] 7 [illegible] 5 [illegible] 5.0 [illegible] 1 [illegible] W_2 [illegible] W_1 [illegible] $1000(W_2 - W_1)/(W_3 - W_2)$ [illegible] W_3 [illegible]

Equilibration [illegible]

[illegible] (14-7) [illegible] 7-1 [illegible]

supersaturated [illegible] 10 [illegible] slope [illegible]

solution composition [illegible]

[illegible] 2.0 [illegible] tared solubility flask [illegible] 70 [illegible] 1 [illegible] 100 [illegible] F_2 [illegible] F_1 [illegible] $1000(F_3 - F_1)/(F_2 - F_3)$ [illegible] F_3 [illegible]

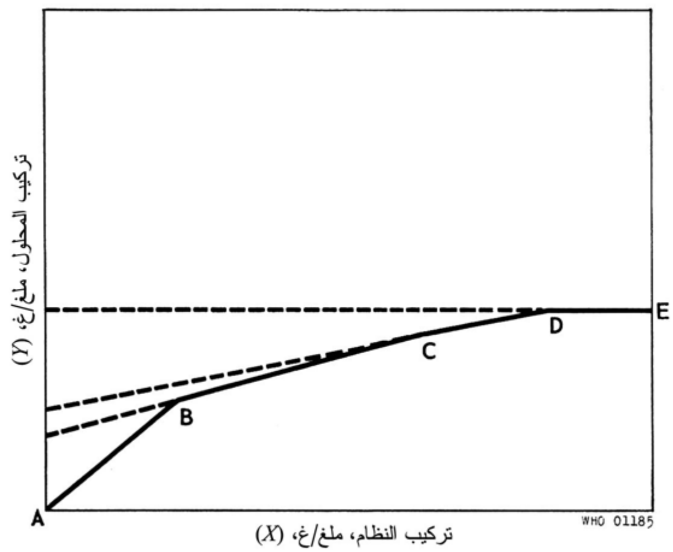
Calculation [illegible]

[illegible] X [illegible] Y [illegible] (3 [illegible]) [illegible] (system composition [illegible] 1 [illegible] slop [illegible] (AB) [illegible] S [illegible] (BC) [illegible] B [illegible] solid solution [illegible] Y_2 [illegible] $S = (Y_2 - Y_1)/(X_2 - X_1)$ [illegible] slope [illegible] 100-100S [illegible]

(BC) [illegible] X_1 [illegible] X_2 [illegible] Y_1 [illegible] diagram [illegible] B [illegible] Y [illegible] (BC) [illegible]

[illegible] Y [illegible]

[illegible] C [illegible] Y [illegible] (CD) [illegible]



ȖÛȶǺöä øẕÛöä ǦǢǫǞǟşǽ ȷǞǢǫǭ ɜ ŌȮÎöä

ǞȚǢŌȭǞǩ ȝŌǦǞş ÛøǞǦǪǹɍä gǻǞŋ Ž ğǞǫẕȮƫä ŌȮǽ ĘŸȞǪǞ ǞȶǢẕ ǞǦǞǦÎŋ ȷǞǢƫä Ž Eş D ƙǪÛŌǞöä ƙǽ ȯẕŸǂä ȷẕȮǞ inflexions ğäŏǞǞǯǫä ǻǢɜ ȯŸǹ ȸŋ ǦǦèǞǞŋ ȓşǞì ǨƠ øǞǦǪǹɍä gǻǞŋ Ž gǻẕǄẕƫä ǢǝäẕÎöä ǻǢɜ ǞȚŢǞ .ǞǪǞǞǭ āẕŸèüǽ ǦęŦȞöä ğäǽ ğǞǫẕȮƫä ğǞǢǫǞǟşǽ ɁŸɜ ȯẕÔΣä ȸȮẔş (B) Ƃşɉä ţǞǦìqä ǦÛŌǫ ȧẕẕ ǦǢǫǞǟşØöä ɁøǞǶǞŋ .ȻŸɜǞ ȣẕȍẕƫä āẕŸèǬǭ ǞǟǞÎŋ

CHEMICAL METHODS ƕŭəʄĭDžĭǀǁɛ 5ƥƲʼǁɛ

GENERAL IDENTIFICATION TESTS [illegible]

Acetylated substances [illegible]

[illegible] monograph [illegible] (18 [illegible]) [illegible] TS [illegible] 1440~) [illegible] (30) lanthanum nitrate TS [illegible] spot plate [illegible] (0.02) iodine VS [illegible] porcelain [illegible] TS [illegible] 100~) [illegible]

Amines, primary aromatic [illegible]

TS [illegible] 70~) [illegible] 2 [illegible] TS [illegible] 10) [illegible] 4 [illegible] R [illegible] 1 [illegible] 2-naphthol TS1 [illegible] 2 [illegible] 2 [illegible]

Ammonia and volatile aliphatic amines [illegible]

[illegible] 1 [illegible] magnesium oxide R [illegible] manganese/silver R [illegible]

Ammonium [illegible]

[illegible] A [illegible] A [illegible] 1 [illegible] R [illegible] 0.2 [illegible] A [illegible] VS [illegible] 0.1) [illegible]

[illegible] methyl red/ethanol TS [illegible] sodium cobaltinitrite [illegible] 1 [illegible] B [illegible] 100) TS [illegible]

Bismuth [illegible]

A. [illegible] TS [illegible] 250~) [illegible] 10 [illegible]
[illegible] sodium sulfide TS [illegible]
B. [illegible] TS [illegible] 1000~) [illegible] TS (80 [illegible] reagent [illegible]
[illegible] TS [illegible] 80) [illegible]

Bromides [illegible]

A. [illegible] TS [illegible] 130~) [illegible] TS [illegible] 40) [illegible] TS [illegible] 100) [illegible] TS [illegible] 260~) [illegible] TS [illegible] 1000~).

B. [illegible] bromides [illegible] hydrobromides [illegible] TS [illegible] 100~) [illegible] TS [illegible] 130~) [illegible] A.

C. [illegible] TS [illegible] 100~) [illegible] R [illegible] chlorine TS [illegible]

Calcium [illegible]

A. [illegible] ammonium oxalate TS [illegible] 25) [illegible] TS [illegible] 250~) [illegible] TS [illegible] 300~).

2) [illegible] .B

80~) [illegible] glyoxal bis (2-hydroxyanil) TS [illegible] .TS (ò/ȟ [illegible]

Chlorides [illegible]

[illegible] TS (ò/ȟ 130~) [illegible] .A

(ò/ȟ 100~) [illegible] .TS (ò/ȟ 40) [illegible] .TS (ò/ȟ 1000~) [illegible] TS

[illegible] bases [illegible] hydrochlorides [illegible] chlorides [illegible] .B

[illegible] TS (ò/ȟ 100~) [illegible] .A [illegible] TS (ò/ȟ 130~) [illegible]

manganese [illegible] .C

[illegible] TS (ò/ȟ 1760~) [illegible] dioxide R [illegible] R [illegible] chlorine [illegible] hood [illegible]

Citrates [illegible]

(ò/ȟ 55) [illegible] .A

[illegible] .TS

.TS (ò/ȟ 300~)

[illegible] mercuric sulfate TS [illegible] .B

(ò/ȟ 10) potassium permanganate TS [illegible]

Ferrous salts [illegible]

potassium (ò/ȟ 10) [illegible] .A

[illegible] .ferricyanide TS

.TS (ò/ȟ 70~)

3ŋ žÀĤłş ÛTS (ȯ/ȟ 100~) ÕÀǿźÀŸÊöä Ȑþ ȯźŸĤƲŧȇ ȐŧĦƲł ÛģåşÀźģä Ž ȸĤĦŋ źĿ Àŧõ ȯźŸǂä ÀȒĦƲł .B
ğÀÀŸȅ ȯźŸȚ ǦźÀȓŮ ÆÀ3 ȯşÂÀ ÛÆÀÆȉ ÀþŮ ȷźö ȷÔÀÀ ǬĿǵ .*o*-phenanthroline TS (ȯ/ȟ 1) ƙöşÀǯǿÀÀĿź źǿǿşŮ
.ceric sulfate TS (ȯ/ȟ 35) ÕÀƘÊöä

Iodides ǀȣǫĭǫǊĭǁȣ

ȯźŸȚ ȸŋ ȣÀȒłş TS (ȯ/ȟ 130~) ÕÀÀǬǿöä Ȑþ ȯźŸĤƲŧȇ ȐŧĦƲł ÛģåşÀźģä Ž ȸĤĦŋ źĿ Àŧõ ȯźŸǂä ÀȒĦƲł .A
100~) ÀĿǿźŋǰä ȯźŸȚ Ž ÀĿŸŧ3 Ǧääşǽ ȷźȮǩ Ûȷźööä öäÀÀö ǦǦǻǻǿ ǦääÀȅƀ ȰȰȊǬǩ .TS (ȯ/ȟ 40) ǦȒÀöä ğäÀǬǿ
.TS (ȯ/ȟ 1000~) ÕÀÀǬǿöä Ȑþ ȯźŸȚ Žş TS (ȯ/ȟ
ÛģåşÀźģä Ž ȸĤĦŋ źĿ Àŧõ ȯźŸǂä ÀȒĦƲł .(ȷÀäşǾöä ǦŸĿŸȩ şŮ ǦääşǾöä Ƙȡ Ȅȅǰäiodides ğäÆÀåźÀ ǿÀǦǬȵä ȎǄǰ) .B
ÛTS (ȯ/ȟ130~) ÕÀÀǬǿöä Ȑþ ȯźŸĤƲŧȇ ǦǵÀȉÀöä ȐŧĦƲłş ǴĩÀÀł ÛTS (ȯ/ȟ100~) ÀĿǿźŋǰä ȯźŸȚ ȸŋ ȣÀȒł
.A ǿÀǦǬȵȓä Ž åǿş Àŧõ ȎŧĤöä ȎŧȮłş
ȸŋ ȣÀȒłş ÛTS (ȯ/ȟ100~) ÕÀǿźÀŸÊöä Ȑþ ǦÛȅäźǽ ȐŧĦƲł ÛģåşÀźģä Ž ȸĤĦŋ źĿ Àŧõ ȯźŸǂä ÀȒĦƲł .C
3ŋ Ȑǂä ÆĤäş ÜɄǿÀǽ ȷźŸǽ ȯźŸȚ ȷǬÀÀ .TS (ȯ/ȟ 100) potassium nitrite ȳźĿȅÀǩźǦöä ǨÀÀǬǿ ȯźŸȚ
.ɄǄÊÀÀǦöä ƂŮ ǦĿŋǿźźşǿźŸȮöä ǦǪǦÛöä ȷźö ȯźĦǬÀ ÀŧÀĿǽ ÛȷźŸöä ƇÆ3 ǴǦÔÀ Ûȳǿźźǿşǿźȳ Ȯöä

Nitrates ǀȣþĿǁȣ

ɍ .TS (ȯ/ȟ 15) ferrous sulfate äşÆÀÆΣä ğÀÀŸȅ ȯźŸȚ 3ŋ žÀĤłş ģåşÀźģä Ž ȸĤĦŋ źĿ Àŧõ ȯźŸǂä ÀȒĦƲł .A
ÀĿÆÀ3 .ǦĿŸÀȅ ǦǪǦù ȎĿȮȊǬö ǿǾɎ TS (ȯ/ȟ 1760~) ÕÀǿźÀŸÊöä Ȑþ ǦźÀȓŮ ȴǩ Ɓ Àŋ Ʉǿÿǽ ȷźö ɃŮ ÀȚȚÀ
.ƙŸǝÀÊöä ƙǽ ȎòÀÀöä ǴÛÊöä Ž Ʉǿÿǽ ȷźö ȷǬÀÀ
ȸŋ Ȏŋ 0.2ş nitrobenzene R ȸÀÂÀĿşÀǬǿöä ȸŋ Ȏŋ 0.1 ȸŋ ȷÀÂŋ ƂŮ Ǧŧ3ÀÀöä ǿÀǦǬȵɍä ģåÀŋ ȸŋ ŊŸŋ 2 ȣÀȒł .B
Ž åɆłş ÛĘǝÀȩå ȄɌ ģÆŋ ǦźÀȣöä ģǿäÀǵ ǦǄǿå Ž åźõÀŸö ȭÀǬł .TS (ȯ/ȟ 1760~) ÕÀǿźÀŸÊöä Ȑþ ȯźŸȚ
ȣÀȒł .TS (ȯ/ȟ 400~) ȳźÀåźÔöä ÆĿÊõşǿÆĿĿ ȯźŸȚ ȸŋ Ȏŋ 3ş ǒÀţä ȸŋ Ȏŋ 5 ǯÂţä 3ŋ ǒÙǦǽ ȣÀȒłş Ûǰǰǯöä
.ÆÀÆȉ ɄǄÊÀÀǽ ȷźö ǦÀźŸĤöä ǦǪǦÛöä Ž ȷǬÀ .ȎÔÀÀĿö ȭÀǬłş ȵȒÀÁł Ûacetone R ȷźǬȅǰä ȸŋ Ȏŋ 5

Orthophosphates ǀǷǮƨǯ ǊƙþǊǓȣ

ȳźĿǿźŋǰä ğäÆǦǿźŋ ȯźŸȚ ȸŋ Ȏŋ 5 ƂŮ TS (ȯ/ȟ 130~) ÕÀÀǬǿöä Ȑþ ȯźŸȚ ȸŋ ǦĿŧȮö ģÀÛȎź ģÀÛȩ ȣÀȒł .A
ƙŧÊȎöä ÆǵŮ ƂŮ ȣÀȒł ÛƙŧÊȩ ƂŮ ȯźŸǂä äǾĿ ȴÊȎł .ÀȚȚǩ ȷŮ ȸȮƨ ǦäÀȅƀ ǦÀŮ ā şǾǩ ʔǿǬǵ TS (ȯ/ȟ 95)
Ɏõ ʔŸȣłş ÛģåşÀźģä Ž ȸĤĦŋ źĿ Àŧõ TS (ȯ/ȟ 130~) ÕÀÀǬǿöä Ȑþ ȯźŸĤƲŧȇ ȐŧĦƲţä ǿÀǦǬȵɍä ȯźŸȚ ȸŋ
.ǦÀĿÀù ȳźłǬ ȸŋ ÀǯõŮ ɄǿǬÀǯöä ȴÊȎöä ÀȚȚł ɍ ÀŧÀĿǽ ǿÀǦǬȵɍä ȯźŸȚ 3ŋ ȷźŸöä öäÀÀö ǦääÀȅƀ ȰȰȊǬǩ .ƙŧÊȎöä

B. [illegible] 40 [illegible] TS. [illegible]
[illegible] 100~ [illegible]
[illegible] 1330~ [illegible] TS.

Potassium [illegible]

[illegible] sodium 30 [illegible]
tetraphenylborate TS. [illegible]

Salicylates [illegible]

[illegible] neutral [illegible] 25 [illegible] ferric
chloride TS. [illegible]
[illegible] acetic acid TS 300~ [illegible] hydrochloric acid
70~ TS [illegible]

Sodium [illegible]

A. [illegible] 250~ TS. [illegible]
[illegible]
[illegible] technical [illegible] A.
B. [illegible] 60~ TS [illegible]
[illegible] uranyl/zinc acetate TS. [illegible]

Sulfates [illegible]

A. [illegible] 50 [illegible] barium chloride TS.
[illegible] 250~ TS. [illegible]
B. [illegible] 80 [illegible] lead acetate TS. [illegible]
[illegible] 80 [illegible] ammonium acetate TS [illegible]
[illegible] 80~ TS [illegible]

Tartrates [illegible]

A. [illegible] 300~ TS [illegible]

ƙDZşøǽǼŢǟ ǽǼÊõşƘǣ ȯzǙŢ ȡƞ ğǟÀÛę 3R̂ǣş ÛTS (ȯ/ȟ 15) ferrous sulfate àşǽǼǽΣǟ ğÀǙè ȯzǙŢ
.ǞzǛę ȯzǙǂǟ ŌĤƨ TS (ȯ/ȟ 80~) ÿzǺzÔǟǟ ǽǼÊõşøǽǼŁ ȯzǙŢ ȡƞ ǦǼzÀõ ǦǼȶõş Ûhydrogen peroxide TS
.ƟDzÊÀǣ şǕ ƟøǟzDZøǕ Àþǘ ȷzǒ ǰǪǺ

ȯzǼèøşÀÀǟ ȯzǙŢ ȡƞ ğǟÀÛę 3R̂ǣ 3ƞTS (ȯ/ȟ 1760~) ŌǺøzǺǙÊǟǟ R̀þ ȯzǙŢ ȡƞ ğǟÀǪ ƟǙǼƞ 3R̂ǣ ǯÀȶł .B
TS (ȯ/ȟ 100) potassium bromide ÿzǼèǺzǦǟ ǽǼƞşÀǣ ȯzǙŢ ȡƞ ğǟÀÛę 3R̂ǣş TS (ȯ/ȟ 20~) resorcinol
10-5 ǥǽƞ ƟǝÀƞ ÿÀþ Ž ŌǝÀÊǟǟ ȡǺÊł .ǥǻşÀzǧǟ Ž ȡǼǨƞ zĿ Àȶõ ȯzǙƕǘǟ ȡƞ ğǟÀÛę ǫŸǭ Ƃǘ ȷǺÀÛę ȣÀR̂ƚş
.Àþǘ ȯzǙǂǟ ȷzǒ ǴǦÔǺ .ǒÀȶǟ Ž ǼÔƚş ŌǝÀÊǟǟ ǻǺǺ .ǽǺǽì ȧøàǘ ȷzǒ ǰǪǺ .ĘǝÀęǻ

LIMIT TEST FOR CHLORIDES lƐǭĭþǊǂǁǁƐ üǗǓ ăǭƟǁƐ þƑǤƗƢǗƐ

ʔÛǨȶǟ ǽΣǟ ȡ3 ğǟǽǺøzǙÔǟǟ ȷzȶR̂ƞ ǽǺÂǺ ɼ ȷǘ ǼƵ ȼǕ ʔǙ3 ǴǼȑzǪǒ ğǟǽǺøzǙÔǟǟ ŌDZɉ ƁǽΣǟ øÀǦǫǹɼǟ ÿǽǬł
ǽǺøzǙÔǟǟ ğÀǫzǺǕ ȡƞ micrograms ğÀƞǟÀȡşÀÔȶǟ ǻǽ3 Ǧǒɼǽǣ individual monograph ǦǺǻÀÀǟǟ ǥǻşÀzǧǟ Ž
250 ʔǙ3 ȼǨƞ ȝzȶȣǟ ǦǫøÀŌƞ ǉǩ ƁǾǟǟ ƁøÀǼǨȶǟ ȯzǙǂǟ Ɓzǫ3 .ǥÀǽǾÁȶǟ ǥǻÀȶǟ ȡƞ ÿǟÀȡ 1 Ōõ Ž chloride ions
.Cl⁻ øzǙÔǟǟ ğÀǫzǺǕ ȡƞ ÿǟÀȡşÀÔȟ

RECOMMENDED PROCEDURE ǋǆ Ĭ Ţ Ădž!ƒ ƇƒƧƞǗƒ

23 ǦǟǟÀǜ ƟǙǹǟǻ ÀÛŌǣş Ōƞ 70 ǦǨÊǣ ȣÀǺÎǟǟ ǯÀDZÂǟǟ ȡƞ ǦŌzǟzǪƞ ÀǨŌǟǟ ǦƕÛÊȟ ǦǫøÀŌȟ ǼǼǣÀǫǕ Ž øÀǦǫǹɼǟ ʔÀDzł
ǻÀǨǣɉǟ ǾØŢ ǦǦèÀǺȟ Nessler ÀǮÊǭ ğÀǫǟzÛèǟ ǽǨǨ .Ōƞ 50 ǈDzΣǟ ǽǺ3ş Ōƞ 45 ǈDzΣǟ ǽǺ3 mark Ǧȶèǩǣ ȡǺÊƞ ǈǙƞ
Ž ȷÀÔƞǫǟ øǽę ǦŌzǟzǪƞ ȷzÔǨ ǼǼǣÀǫǕ "matched tubes ǦŌzǟzǪƞ ǼǼǣÀǫǕ " expression ǥøǺǦ3 ƟøǺǨǨ .ǞÀǫǕ ǥøzõØȶǟ
.ʔÀǹɉǟ Ɵǥǟzǽǟǟ ǦzÀõ Žş ƟǙǹǟǽǟǟ ÀĿÀÛę

ȡƞ Ōƞ 1 ȣÀR̂ƚş Ōƞ 50 Ƃǘ ǒÀȶǣ ȤǟǺÁƚş ÛǦǭøÀŌƞ āzǦǕ Ƃǘ ŌǾǺł ÛǥǻşÀzǧǟ Ž ȡǼǨƞ zĿ Àȶõ ȯzǙǂǟ ÀR̂ƕł
ǦǨìǕ ȡƞ ǞǼȶŢ ÛĘǝÀęǻ 5 ǥǽƞ ǞǦǫÀDZ 3ȑzƚş ÛǯÀDZÂǟǟ ȡƞ ǼǼR̂Ǭǣ ǞǿzzǠõǞƕł .TS (ȯ / ȟ 40) ǦR̂ǞǟǠ ğǟÀǪǭ ȯzǙŢ
ÀƞǽǺ3 ǦǒÀÎȟ ǥøzÔǣ ÀR̂ƕȟ ƁøÀǼǨǭ ȯzǙŢ ÿzȶȡ ȡƞ ÀǯõǕ ǦƟÀǺǟ opalescence ÿzȶȣǟ ȷzÔǨ ɼ .ǥÀìÀǦȶǟ Èȶ Îǟǟ
.ǒǟǻzè ǦǼÀǙǹ ŌǝÀŌƞ ÀǯǪƞ ǒzȑ Ž āzǦǭǫ Ɓǻzȶǟǟǟ øzǂǟ ǾÀΘÀǣ ÀŢǺł

Standard opalescence ƕĭþƑĭÿǾǅǁƐ !ǊǆǅƐǁƐ

ŌǺÀǪǠǟ R̀þ ȯzǙŢ ȡƞ Ōƞ 10ş hydrochloric acid CITS ŌǺøzǙõşøǽǼŢǟ R̀þ ȯzǙŢ ȡƞ Ōƞ 5.0 āÀŌł
ğǟÀǪǭ ȯzǙŢ ȡƞ Ōƞ 1 ȣÀR̂ƚş ÛŌƞ 50 Ƃǘ ǒÀȶǣ ȤǟǺÁł .comparison tube ǦǭøÀŌȟ āzǦǕ Ž TS (ȯ/ȟ 130~)
Èȶ Îǟǟ ǦǨìǕ ȡƞ ǞǼȶƕȟ ÛĘǝÀęǻ 5 ǥǽƞ ǞǦøǭÀDZ 3ȑzƚş ƟDZÀDZǟ ǼǼR̂Ǭǣ ǞǿzøzǠõǞƕł .TS (ȯ/ȟ 40) ǦR̂ǞǟǠ
.ǥÀìÀǦȶǟ

LIMIT TEST FOR SULFATES [illegible]

[illegible] 1 [illegible]

[illegible] SO_4^{--} [illegible] 480 [illegible] standard barium sulfate suspension.

RECOMMENDED PROCEDURE [illegible]

[illegible] 23 [illegible] 70 [illegible] Nessler [illegible] 50 [illegible] 45 [illegible] mark [illegible] matched tubes [illegible] expression [illegible]

[illegible] 5 [illegible] 45 [illegible] 10 [illegible] TS [illegible] turbidity [illegible]

Standard turbidity [illegible]

[illegible] 3 (0.005 [illegible]) sulfuric acid VS [illegible] 1.0 [illegible] 5 [illegible] 45 [illegible] comparison tube [illegible] TS (~70 [illegible]) [illegible] 10 [illegible] barium sulfate suspension TS [illegible]

LIMIT TEST FOR HEAVY METALS [illegible]

metallic impurities [illegible] hydrogen sulfide [illegible] 1 [illegible] lead [illegible]

[illegible] hydrogen sulfide [illegible] standard.

ÀŘĦł .ÇÅφâǓ Ğʐζǒζţă 4 БǓ 1 ȡŋ ğăõăÀDZŘõ ÅŐζş ǕğáşÀζģǎ Ž ƘĦŋ ζĿ ÅŧÕ ǕøÀĢŋ ǹɾă òζŸȚ ƘŘƠ ʔÀDzł
.ĞõÅÎŋ ĞŐÀÛǣ blank ÆŁÅÎäă òζŸȚ

ɭǬǨ .ÀDZàÅù ÀŘŧă TS ƘDZşøÆŢă ÆŁÀŸè òζŸȚ Ʒŋ øÅĢŋ ǹɾă òζŸȚ ǯÂŋ ƘDZşøÆŢă ÆŁÀŸè Ʒŋ ŐʒÅÅǬă ʔÀDzł
ɹζŸǨ ģÆì ĞφøÅŐŋ şǓ (A ĞŐÀÛőă) ĞĢèÅÅŋ ĞφøÅŐŋ ÆŁǣÅφǓ Ž ŐəÅÊőă ɹζŸǬő ģÀìÅĢţă ĞφøÅŐţÅǣ ÅŋǓ ăØŁ ǰǨÅÅőă ɹζŸőă ĞφøÅŐŋ
.(B ĞŐÀÛőă) ɭəŸŋ àÅȤDZ òÅŧĦǬèÅǣ ŐəÅÊőă ǴŁìÀǨ ȡŋ ĞѲÅÅőă ƷǬǂőă

ĞŸŧĦǬÊţă øÅĢŋ ǹɾă ģåÅŋ ȡŋ ɹàζőă Ž ĞŸŁŐǯőă ɹåÅĦţă øăÆŐŋ ÆÀÂÅ ÅŋÆÅʒ ÙŐζ A ĞŐÀÛőă ĘǕǬǨ ɹǓ ÿÅʒ ŐȮÎǣ ȡȮŧł
.B ĞŐÀÛőă òÅŧĦǬèă Æƶ ĞŸŁŐǯőă ɹåÅĦţă ȡŋ ÿăÀɖşÀȮĥ 5-2 ȡŋ ğÅŁŧÕ ŐDZɉ ǕÿăÀɖşÀȮĥ 5 ȡʒ

ÿăÀɖşÀȮĥ 10 ʔŸʒ Ƀ̧şÅΣă lead Pb TS î ÅòÀőă òζŸȚ ȤÅÅÅł ǕøÅĢŋ ǹɾă Ž ŐŧĦǬÊţă ɃøÅŁĦĈţă î ÅòÀőă òζŸȚ
ȟ 1 ȡŋ òζŸȚ Ʒŋ ĞφøÅŐţă ŐDZɉ ɃøÅŁĦĈţă ƘŘĦǬő òζŸŧă ăØŁ ȡŋ Őŋ 0.1 ÿÆÅǬÊł ÅŋÆÅʒ .Őŋ 1 ŐÕ Ž î ÅòÀőă ȡŋ
1 øăÆŐţ öżÅȮţă ŐǯŧŀŞ Pb î ÅòÀőă ȡŋ ÿăÀɖşÀȮĥ 1 ʔŸʒ ɃζǬƷ ÀŘĦţă ɃøÅŁĦĈţă òζŸŧă ăØȤζ ǕğƎǬÅţă ģåÅţă ȡŋ
.ğƎǬÅţă ģåÅţă ȡŋ ÿăÀɖ 1 ŐÕ Ž î ÅòÀőă ȡŋ ÿăÀɖşÀȮĥ

Apparatus ŖǷŊǛŒⅡℇ

ÀĦŐőă ĞĦÛÊŋ ĞŐζăζŋ ĞφøÅŐŋ ÆŁǣÅφǓ Ž øÅĢŋ ǹɾă ʔÀDzł A ĞŐÀÛőă ĞÛèăζǣ ĞŸŁŐǯőă (ğăÂŸÅőă) ɹåÅĦţă ƘŁĦǨ ŐDZɉ
ɭDzΣă ÆÅʒş Őŋ 40 ɭDzΣă ÆÅʒ mark ĞŧèζǣĞÅÅÊŋ ɭŸŋ 23 ɄŸǹăá ÀÛŐǣş Őŋ 70 Бăζǵ ĞĦÊǣ ȢÅÅÎőă ǯÅDZÂőă ȡŋ
ĞŐζăζǬŋ ÆŁǣÅφǓ" expression ģøÅĢʒ ɄøÅĦǨ .ÅÅφǓ ģøζÕØţă åÅĦăɉă ÇØȚ ĞĢèÅÅŋ Nessler ÀĈÊĥ ğÅφăζÛèă ÆĦł .Őŋ 50
ǯÂŋ ŐDZɉ .ʔÀǹɉă Ʉǵăζőă ĞζÅÕ Žş ɄŸǹăÆőă ÅŁÀÛę Ž ɹÅȮŋɋă øÆę ĞŐζăζǬŋ ɹζȮǨ ÆŁǣÅφǓ Ǖ"matched tubes
.ĞŁŸÅÊőă ¢ǬÅÅŒ Ž loop ģşÀƺ ¢ő ɹζȮÅ ɹǓ ŐŘÅł ŐÅÀƠ ÆŁŘę ŐŧĦǬÊł òζŸŧă

ģåÅʒ) ĞĢèÅÅŋ ģåÅŋ ȡŋ ĞʒζÅÔŋ Őŋ–50 syringe ĞÅǬĦĥ ŐŧĦǬÊł B ĞŐÀÛőă ĞÛèăζǣ ĞŸŁŐǯőă ɹåÅĦţă ƘŁĦǨ ŐDZɉ
9 ɄŸǹăá ÀÛŐǣ lure conical joint ɄùşÀÅţă øζő ÀÕǣ ŐÔÅĥş ŐÔÅŸő ŐǣÅę plunger ȧăøå Ʒŋ (plastic ŎǬèŸĢőă
ŐDZɉ adapter ĞŋǘŴ ĞŸÔǬŋ (ĞĢèÅÅŋ Millipore syringe XX 11 050 05 øζĢŸŁŋ ĞÅǬĦĥ ÆĦǨ) ĞŁŸÅÊőă ĞÅÅȤÅőă Ž ɭŸŋ
.ǴŁìÀǬőă

ƘŸŁǣşƎőă ÆÅÆʒ ȡŋ SX00 013 00 øζĢŸŁŋ ǴŁìÀǨ ĞŋǘŴ ÆĦǨ) ĞĢèÅÅŋ ģåÅŋ ȡŋ ĞʒζÅÔŋ ĞŋǘŴőă ɹζȮǨ
БǓ ŐÔÅŸő ĞŸǣÅę ɹζȮǨ ǬŁŒ ĞŧŧÔŋ ÅŒǓ .ĞÅǬĦĈţă Ʒŋ ÅȤŸòş ŐDZɉ ɃζǯǬǓ ŐÔÅĥ ÅTş (ĞĢèÅÅŋ polypropylene
ŐDZɉ ŐŧĦǬÊł .ɭŸŋ 13 ÀÛŐǣ ĞŁəÅÎȢőă ǴìăÀţă ŐDZɉ ĞŋÅʒá ʔŸʒ ɄŸÅÊőă öÀƨă ɃζǬƷ ǕǴìăÀţă ŐÀÆĢǬǣ ǴŧÊǬő ƘəÂDZ
(ÅĢèÅÅŋ Millipore prefilter AP 2001 300 øζĢŸŁŋ ǴăÀŋ ĞÅŁŸè ÆĦǨ) ĞĢèÅÅŋ prefilter ǴăÀŋ ĞÅŁŸè ǴŁìÀǬőă
ÀǬŋşÀȮĥ 3 ɭÊŋ ĞĦǬζ Ʒŋ Ǖɭŋ 13 ÀÛę Ǖcellulose esters àζǨζÊőă ğăÀǬèă ǰÀÂŋ ȡŋ ţζÅÔŋ ɄəÅÎĈ ǴăÀŋş
.(ÅĢèÅÅŋ Millipore filter SSWP 013 00 øζĢŸŁŋ ǴăÀŋ ÆĦł)

RECOMMENDED PROCEDURE

Preparation of test solution

4-3 pH 25 .1

(100~) ammonia Pb TS Pb TS (60~)

.40

30 .2

(dioxanR acetone R methanol R (50~) ethanol TS

.solvent 40 (300~) acetic acid TS 0.5

crucible .3

charred silica

2 .charring

(1760~) sulfuric acid TS 5 (1000~) nitric acid TS

muffle furnace fumes

2 . 500

residue . TS (250~)

digest 10 (250~) hydrochloric acid TS

pH (100~) ammonia Pb TS .

(60~) acetic acid Pb TS 8.5 8

.40 10 .4 3

.4

magnesium oxide R 0.5

incineration 15 .

70~) .

pH (100~) ammonia Pb TS TS (

(60~) acetic acid Pb TS 805 8

.40 4-3

.A [illegible]

[illegible] TS [illegible] 10 [illegible] 40 [illegible] 5 [illegible].

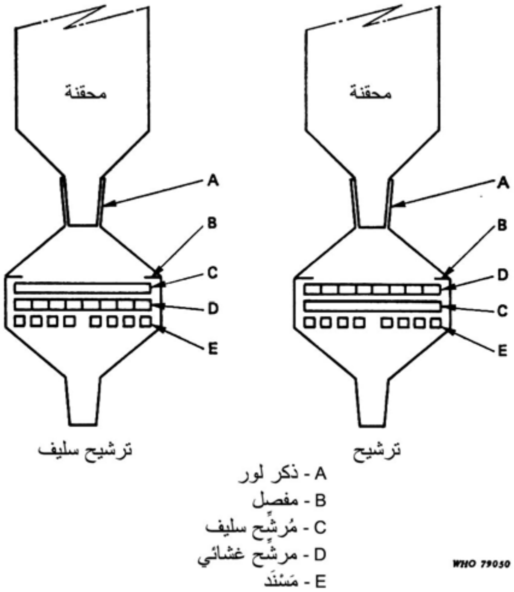
[illegible] lead Pb TS [illegible] ammonia Pb TS [illegible] pH [illegible] 4-3 [illegible] (~60 [illegible]) acetic acid Pb TS [illegible] (~100 [illegible]) [illegible] TS [illegible] 10 [illegible] 40 [illegible] 5 [illegible].

[illegible].

.B [illegible]

[illegible] diagram [illegible] syringe [illegible] plunger [illegible] prefiltration [illegible] membrane filter [illegible] adapter [illegible] beaker [illegible] B [illegible] impurities [illegible] ammonia Pb [illegible] (4 [illegible]) [illegible] 10 [illegible] 4-3 [illegible] (~60 [illegible]) acetic acid Pb TS [illegible] (~100 [illegible]) TS [illegible] reagents [illegible] hydrogen sulfide TS [illegible] 5 [illegible].

[illegible] Pb TS [illegible] (~100 [illegible]) ammonia Pb TS [illegible] 40 [illegible] 4-3 [illegible] (~60 [illegible]) acetic acid Pb TS [illegible].



B [illegible] .4 [illegible]

[illegible]

LIMIT TEST FOR IRON [illegible]

[illegible] iron [illegible]

[illegible] 40 [illegible]

RECOMMENDED PROCEDURE [illegible]

23 [illegible] 70 [illegible] mark [illegible] 45 [illegible] 50 [illegible] Nessler [illegible] "matched tubes [illegible]" expression [illegible]

[illegible] 40 [illegible] 2 [illegible] citric acid FeTS [illegible] (180/[illegible]) [illegible]

ÛŌŋ 50 Ƃǚ ŏǺţǺæ ZǺǺŀ Û(ȯ/ȟ100) ammonia FeTS ǺƐŋ ȯƶŶƕŀ ȷƶŶǾŀ ÛǯÂŀ Ümercaptoacetic acid R
ʔǺŀ ǺŋǼ ¢ǺÎŋ ŎÒÎæ ǺȐƕţ ɃøǺǺţ ȷƶŶ ȸŋ ĝǼû ǺǯŏǕ ǰǺǺ ȷƶŶ ȷƶȮǺ ɍ .øǺŎǪèŸ ĘǺęǻ 5 ĝǼŋ ōǺķş
.ŏǺȒæ ǴǺŸǹ ŌǺŌŋ ǺǯǺŋ ŏƶȑ Ž āƶǬǬ Ƀǻƶŧǘ øƶǂā ȻǺΘǺæ

Standard colour ăƥƑĭƴ

Ōŋ 2 ȣǺȒŀ .ǴøǺŌţ āƶǬǚ Ž ŏǺţ ȸŋ Ōŋ 40ş iron standard FeTS ǼǺǼƕŸ ɃøǺǺţ ȯƶŶǂā ȸŋ Ōŋ 2 āǺŌŀ
ŌǪǼèǚ ƶǪǺōƘŋ Ȑƥ ȯƶŸƮ ȸŋ ȷǺǺÛęş (ȯ/ȟ 180) citric acid FeTS ŌǺǺǪÊ Ȑƥ ȯƶŸƮ ȸŋ
ÛŌŋ 50 Ƃǚ ŏǺţǺæ ZǺǺŀ Û(ȯ/ȟ 100) ammonia FeTS ǺƐŋ ȯƶŶƕŀ ȷƶŶǾŀ ÛǯÂŀ Ümercaptoacetic acid R
.øǺŎǪèŸ ĘǺęǻ 5 ĝǼŋ ōǺķş

LIMIT TEST FOR ARSENIC

Ž ɁÛǺţ ǼΣā ȸȝ ǼǺǺ ɍ ȷǚ Ǣƶ ǸǺøǺā ȸŋ ʔƶǂā ȷǚ ǴȑƶǪ arsenic ǸǺøǺā ŌǄɉ ɃǼΣā øǺǪǹɍā ÿǼŀ
.ĝƎǪǺţ ĝǻţ ȸŋ ÿǺȡ 1 Ōõ Ž ǸǺøǺā ȸŋ ğǺŋǺȡşǺȮţ ǻǼȝ ǴǺɍǼæ ǴǺǻǺǺ ĝǻşǺǵā
.ĝǻşǺǵā Ž ȸǺţ ŏǺǄqā ǢÊɯ ĝǺǺǺţ ĝǻţ ȸŋ ȯƶŸƮ ǺȒƕŀ ǸǺøǺā ŌǄɉ ɃǼΣā øǺǪǹɍā ŏǺǄǚ Ǵ8æ
.ĝǻţ Ž ǻƶǄƶţ (ǻƶǄƶŋ ¢Ǻŋ Ǻǚ ȷǺõ ǚ) ǸǺøǺā ŌŋǺõ ǴǺǵ Ōõ Ž ɃƶǪȝ ȯƶŶǂā ȷǚ ɁŸȝ ŏǺǄqā ǺØŁ ȸŧȒǺ
.As ȸŋ ÿǺȡşǺȮŋ 10 ɁŸȝ ǺƮǺŌŋ ǴøǺŌţ ȴǪ ɄøǪā standard stain ǴøǺǺţ ǴǻÛǺ ɃƶǪƕ
ǴŸÊŸè ȝŋ ǴǻÛǺ ȷƶǚ depth Ęŧ ǴŸǺŌŋ ĝǻţ Ž ǸǺøǺā Ǵŧõ ƙǺǪ ǺȒǚ ȣƶȍƶţ ŏǺǄqā ŌŧǪÊŀ ȷǚ ȸȮƨ
ɁŸȝ ĝǻţ ȸŋ ȟ 10 ɁŸȝ Ōŧǘ ȸŋ ǴΘǺǺ ǴøǺǺţ ǴǻÛǺ ȸŋ Ōŋ 1 Ƃǚ ǴǺǺȮţ ǴǻÛǺ ȯǼ .ǴøǺǺţ ğǺǻÛǺ ȸŋ
.ÿǺȡ/ÿǺȡşǺȮŋ 1 ƶŁ ǸǺøǺā øǺǼŌŋ ȷǚ
.As ŌȮì ɁŸȝ ¢ā ȡƶŧÊţ ǸǺøǺā øǺǼŌŋ ȸȝ Ǻŀ ÛǸǺøǺā ǻşǼǵ ȷǺæ Ž

Apparatus ȐƑ

.ʔǺǹǺ ǴõƶǴŋ ĝǺƮǄǚ ǺƶāƶǨ ȴǪş ÛȻǺǻǚ ȣƶȍƶŋ ǺƮǄŸ ǢèǺţ ÙŧǺ
.ɄǄǺǄà āƶǬǚ ǺƮŸǹ ȸŋ Ǻƨ rubber bung ǴùǺÛŋ ĝǻǼÊæ ĝǻşǺŋ ÛŌŋ 120 ǴǺǺ ǴǺÊæ ȴǺā ǴȒǺȝ ĝøşøǺę
ɄǄøǺʅā ǺÛŌā) ǺŋǺǪ ȴŸŋ 605 ɄŸǹǼā ȻǺÛęş ȴŸŋ 200 ¢ƶù ɃØāş ÛǴǺǻǺǘā ǢǺǺɉā ǯǺǄà ȸŋ ÛƘǹɉā ǺØŁ ȜǺÔŀ
ǢǺǄ Ž ǸǺǪŋ ȴŸŋ 2 ȸȝ ȻǺÛę ŌŌǺ ɍ ZǺƶΘ ¢õş ÛȴŸŋ 1 ǴǺǺǺ ǺÛę Ƃǚ ¢ǺǺǢ ʔǼǵǚ Ž āƶƕÊŋ Û(ȴŸŋ 8 Ƃǵ
ǺŋǼȝ Û¢ǺǚǪɯ ĝøşøǺŌā bung fitting ǢèǺǺ ĝǻǼè ȯŸǹ āƶǬɉā Ǻŧ .ĘǼȒǪţ ǢǺƨā ȸŋ āǺŌǺæ ÛāƶǬɉā
ȷƶȮǺş ŌǺÊā ǴÛè ȧƶƶ āƶǬǬ ǴŌǼȒǪţ ǴǺƮǺā ȷƶȮǺ ÛŌǺÊā ȸŋ Ōŋ 70 ɁŸȝ ǴşǺΣā ĝøşøǺŌā Ž ŌǹǼŀ
ȷǚ ǺŋǚɄş ÛȝǺǺŋ ŌÒÎæ ǴȝƶÛŌŋ āƶǬǬ ǴǺƶŸǘā ǴǺǺƮǺā ȷƶȮǺ .bung ĝǻǼÊā ţǺę ŌǺèǚ ǢǺƨā Ž ZǺƶǄǪā

.ǴÛÊöä ŏÅÊŸŋ ʂǕ ŎǮŸę ŎÒÎǽ ǥǿʂǼɦ ɉ ζÒǨ

ÛǼŋÅǭ ǈŸŋ 6.5 ɄÕǮÕǵ ÅÛÕǽʂ ÅÅÂÕÅŋ ǟζÕǯŋ ȤÅζθ Û(ǈŸŋ 25 × ǈŸŋ 25) ƙǬǮùÅÛţä ƙǨǻäǼÊöä ȸŋ ŎÒöʂ

ǦǮǅ ȸŋʂ ÛÿÅÒǵǖǽ ÅŧǮŘǰǽ ȝŋ ÅŧǮÒÊŋ ŎǅȤɉ spring clip ȭƎǭä ȬǤÎǭ ʂǕ ɄùÅÛŋ ȓÅǽÅǽ ÿÅÒǵǖǽ ƙǬÛǦÅɦ

ȣζòζŋ ζȽ ÅŧȭÛǿÅǦǬǹɍǟ ȓʂÅì ɄøǦŸɫ ÆèÅÅɦ construction ŏÅǬǟä ɃǕ ɉÅǨǻäǼÊöÅǽ òǼǦǬÊɫ ɉǕ ȸÒŧɫ ÛɁÅǹǕ

.ǷÅǭǻǕ

RECOMMENDED PROCEDURE ǋǊ Ǐ Ʈ Ǎdž!ƒ ǅƒȢŋŰƒ

ǬǮɯ ÛȤÅǄɫʂ TS (ò/ȟ 80~) ĩÅòÅöä ǧÅǬǮèǕ òζŸɄŧȇ ǼÅǭǕ ÆȗÅţä ÛȸÛȭöÅǽ ĘζÅǽ ɄǄÅǄǞ ǟζǦǭǕ ɁÎɄɫ

.ǟζǦǭɉä ǦŧĘ ŎÅèǕ ȸŋ ǈŸŋ 25 ȸȝ ŎȭÅ ɍ ţÅÅǨǿä ɁŸȝ ȸÛŎŸö ɃζŸǰöä ǴÛÊöä ɉζÒÅ

10 ƃäζǵ Ęŧȝ ƃǕ (1) ÅŋǕ ÛƙǬǮùÅÛţä ƙǨǻäǼÊöä ɄǄʂä Ǽǵɉ ǦȭǮȒöä ǦÅÅǮÅöä Ž ǟζǦǭǬǭ ǦÅζŸǰöä ǦÅÅǮÅöä ȝȓζɫ

ƎȭɉäǦÅÅǮÅöÅǽ ǥÅÎɄÅɦ ǟζǦǭǬǭ ǴÛÊöä ŏÅÊŸţä ǦÅÅǮÅöä ɉζÒǨ ǬǮɯ (2) ʂǕ ǥǿʂǼţä ǦÅÅǮÅöä Ƀǽ ǟζǦǭɉä ǦöÅǵ Ž ǈŸŋ

ȝȓζǨʂ ÛǥǻäǼÊöä Ǧŧę ɁŸȝ ǴÛÊţä mercuric bromide AsR ĘǦǝÂöä ǼǮŋʂÅǽ ȤìÅȭ ȧǿʂ ȸŋ ǦǰÛę ȝȓζǨ .ǥǻäǼÊŸö

ÅǦȭǭ ɄȭǬŸÅ ǦȭÅÅÛöä ǷǾȽ Ŏǯŋ Ž ÛȭƎǭä ȬǤÎǭ ʂǕ ɄùÅÛŋ ȓÅǽǿ ǦÛèäζǽ ţζŧǑä ÙäÅɫ .ÅǮęζζ ɁÅǹɉä ǥǻäǼÊöä

ǟÅǄǵ ǦÛèäζǽ ôÅǬǰɦ ǈŸŋ 6.5 ÅÛÕǽ ǼǮÕǮÕǵ Ǽǽζ ǦǭǕ ŶǬÎǨö (ɄǄÅǄÂöä ǟζǦǭɉäʂ ǦÅζŸǰöä ǥǻäǼÊöä ÆȭǭʂǕ) ƙǨǻäǼÊöä

.mercuric bromide AsR ĘǦǝÂöä ǼǮŋʂÅǽ ȧǿʂ ȸŋ diaphragm

ŎŋÅȭ Åƨ ɉǕ (1) ȓÅì ǦÅÒư ɁÅǹǕ ǦȭÅù ǦÅǕ ÿǼǺǬÊǨ ÛAsR ĘǦǝÂöä ǼǮŋʂÅǽ ȧǿʂ ĘǮŸǨ ȸŋ ǦȭÅÛöä ǷǾȽ ȸȝ ɍǼǽ

ɉζÒÅ ɉǕ (3) ÛǈŸŋ 6.5 ÅȽÅÛę ǥÅǽäǼǽ äÅȣöä ȝŋ ǡÅǭ ɁŸȝ ȧǿζöä ȸŋ ǈÊę ɉζÒÅ ɉǕ (2) Ûȧǿζöä òŸǹ ǿζÛǬţä äÅȣöä

.ǿÅǦǬǹɍǟ òŸǹ Èŧ Îöä ŏζȓ ȸŋ ǼŧɄɦ ȧǿζöä

ÿζǮèÅǨζǦöä ǼÅǻζÅ ȸŋ ȟ 1 ȣÅȒɫ ÛǈÅöä ǦȒÅȝ ǥǿʂǿÅę Ž ÛǥǻʂÅζǧɉä Ž ȸǼǰɦ ζȽ ÅŧȭÅȒɄţä ÛòζŸɉä ȝȓζɫ

ÅȒɄţä ɄǄÅǄÂöä ǟζǦǭɉä ȝȓζǨʂ Ûgranulated zinc AsR ÆǼɄţä ȬǭÂöä ȸŋ ȟ 10ʂ potassium iodide AsR

ȧǿʂ ɁŸȝ ǰǬǨ ɉζŸöä ŏäÅÅò ǦǺÛǭ ǦÅǕ ɉǿÅǬɫ .ǦȭǮęǻ 40 ǥǼŋ ǿζÛǬǮ ŎȝÅÅǬöä ȭÅǬɫ .ǢǰȓζŋŽ ǦȝÅÊǽ Ǧȝζŧƒ ŎÒÎǽ

ǸǮǭǿÂöä òζŸƮ ȸŋ ǦζʂÅǰŋ ǦȽŧȭ ȸŋ ǦŏÅÎɦ ǦȭÅÛǽ ǦΘÅǭ ÛǦÅǿÅǼǰǬ ǦǺÛǭǽ Ûmercuric bromide AsR ĘǦǝÂöä ǼǮŋʂÅǽ

ǿÅǦǬǹɍǟ ǧÅǺÛǭö ǨęäζǬɦ ƘȒƠ ǼǰǼ ǻǿζζʂ ǿÅǮÅöä ŏζȓ Ž ǦǭǿÅȭţä ɁÅǄɫ .diluted arsenic AsTSȤÅǺţä

.ȘÅƩÅǽ ǧÅǺÛǭöä ŎǽǾǨ ÛɃǿÅǼǰǬǾʂ

äÅȣöä ǿζÛǨ òǼǰŋ ɉǕ Åŋ ÛȸÒöʂ ◦ÿ 40 ƃäζǵ ɄȽ ÿÅȝ ŎÒÎǽ ǿÅǦǬǹɍǟ ŏäÅǄǅǕ ŎǅȤɉ ǦǤèÅɦ ÅǯȭɉäǥǿäÅƩä ǦǄǿǻǻ

ǥǿäÅƩä ǦǄǿǻ ÙǦȓ ȸÒƨ Ûgranulated zinc AsR ÆǼɄţä ȬǭÂöä Ȥ ìÅȭ ȸŋ batches ǧÅǦǄζöä ȣŸǬǹÅǽ ȤŸǬǺÅ

äÅǮȢä ȝȓζǽ ŎȝÅǬöä accelerated ŎǅζǰɫɉǕ ȸÒƨ .ȤǼÅǰöä ŎÒÎöÅǽ ÈǼö ȸÒöʂ ÛäÅȣŸö ɄŋÅȚǭ ǿζÛǨ ɁŸȝ òζÔɄŸö

.ǿÅǦǬǹɍǟ ŏÅǬǕ ÅŋÅǭ ÅζÅǄ AsR ĘǦǝÂöä ǼǮŋʂÅǽ ȧǿʂ ŏÅÕǽ ɉÅŧȒö ǿǾƩä Æƶ ÛŏŽǻ ǴÛè ɁŸȝ

[illegible] AsTS (250~) [illegible] .[illegible]

Standard stain [illegible]

stannated hydrochloric acid [illegible] 10 [illegible] 50 [illegible] dilute [illegible] arsenic AsTS [illegible] 1 (250~) AsTS mercuric bromide paper [illegible] .[illegible] AsR

SULFATED ASH [illegible]

RECOMMENDED PROCEDURE [illegible]

[illegible] dish [illegible] 1 [illegible] .TS (1760~) [illegible] moisten [illegible] (platinum [illegible] 800 [illegible] (...) [illegible] TS (1760~) [illegible] .[illegible] ignite (...) [illegible] ammonium carbonate R

OXYGEN FLASK METHOD [illegible]

[illegible] sulfur [illegible] halogens [illegible] .titrimetric determination [illegible] organic [illegible] water-soluble inorganic [illegible] .individual element [illegible]

Apparatus [illegible]

[illegible] combustion [illegible] 500 [illegible] platinum gauze [illegible] .[illegible] absorbing liquid [illegible]

Ǣʑ .ȁǺƬƨǟ ƙǟş ȼǺǢǟ ȼǨȒǺ ɭǺɳƆǬ ǟȝǿǻ ǑȶǨǬȆǺ ɭǗş ɭǺɳǗ ğǟǿǺŢƥ ǑǬǠŧǟ ɃǺǨǺ ɭǗ Ǣʑ :**CAUTION** ǺǺǾƠ

.ǴǺʐȒǨǟ ğǺǴǾŧǟ ǿǺǬǗ Ǒõ ȸɳ ǴǨǺȵş scrupulously ĘǬǨɳ ʐǗ ʔǗȝ ǴǺǢŢƥ ǴǗǅʐƩǟ ɭʐǑǨ ɭǗ

ɭǬ Ǘɭè 3 ǒǺǨş ɭè 5 ȯʐǗǟ halid-free ǢǢǑǺŢǟ ȸɳ ǴǢǑǺɿǟ ǴǢɿǺǬǟ ȧǿş ȸɳ ǴǨǗȩ Ž ǿǺǬȵɍǟ ǧǺɳ ƸǤǴ

.ǴǢɿǺǬǟ ȧǿʐǑ ĘǤȒǟ strip ǛǺǺǏǟ ɄøǬǺǢ ʔǢǵǗ ǺƬǢʐ ǑȵǢş ǗɆǢǨƳǟ ȇǺɿ Ž package ǴɳʐȶȒŧǟ ʔǗȝ ƙɳǗǬǟ

ǒǺȒǨş Ǘoxygen ƙǅȆõǧǺǟ ǴǗǅʐƩǟ Ƣŧǩ ǗǴǗǅʐƩǟ Ž ȸǨǨŧǟ ɳǏ ǺŧǟǑǟǺȆǟ ȝǐʐǺş ǗǑǺŧǺǟ ǴǗǅʐƩǟ ĘǺȝ ǢǓǺǨ

ǗǢǴǺ ǺɳǢǺȝ .ğǺǦǟ ǺǢǺǑɳ Ž ǧǺǟǢȆǟ ʔǗȝ ȘʐǺǨǨ .ǿʐʐ ǧǺǟǢȆǟ ǑȵǢş ǴǢɿǺǬǟ ȧǿʐǑ ĘǤȒǟ ǛǺǺǏǗ ǧǺƩǟ ǴǺƬǺǟ

ǟǿʐʐ ǗǴǗǅʐƩǟ ȐȒǺǨ .ǑǟǺȆǟ Ž ɼʐǑȆǟ ȸɳ ȳǺǨ ǑǑǏǟ ǴęǺǬǨǟ Ƙɖ ǧǺŧǟ ȝǺŧ ǴǗǅʐƩǟ ǴǑǺɳǗ ɭǬ ǗɼǺǏǺǟ ȧǟǺǬǵɍǟ

ǗǴǺǺǨȇ ǧǟǟǢȆǟ ǢǨɄȆǨ ǗǴǗǅʐƩǟ ǴʐǺǵ ȯʐǵ ǒǺŧǟ ȸɳ ǑǢǗę ȝɼʐǨ ǗĘǟǺę 10 ǴǟǺǨ ȝǗǑǬɳ ǑǑǏǟ ǗȧǟǺǬǵɍǟ ɏǺǬ ǢǨǟ

ʐȽ ǺŧǑ ȯʐǗǂǟ ǟǾȽ ǑǢǗƠ ǑŧǑǨ .ǒǺŧǺǟ ǴǗǅʐƩǟ ǢǬǟʐǅş ǗɆǢǨƳǴǟ ȇǺǏǟş ǗɆǢǨƳǴǟ ǑǗȆǟş ǗǧǺǟǢȆǟ ƸǗǏǨş

.ǧǺşǺʐǧǟ Ž ȸǨǨɳ

ǴǢŧǑǟ ɭǟş ʔǺǅʐǨ ɭǗ ǑǴę ǟǢǢǅ ǴǅşǺưş ǴɳʐǨǟ ǴęʐɄȆɳ pulverizable ǿǟǿǟɎǗ ǴǗǟǑǟ ǧǺŧǟ ɭʐǑǨ ɭǗ Ǣʑ

.ǴǺǨǨŧǟ

(methyl- ǟʐǑʐǗȇ ǑǢǦǧǟ ȯǺǦǧǟ ǑǢǴè ʔǗȝ) ǴǴèǺɳ ǧǺɳ ȸɳ capsules ğɍʐȆǴõ ǑȶǨǬȆǨ ǗǑǟʐȆǟ ǑǅɈ

ashless filter-paper flock ǻǺɳǟǟ ǅǢȝ Žʐò ǴǢɿǺǨ ȧǿş ȸɳ ɳǗɳ 15 ǴǟǺǨ ȧʐʐ ǴǨǨŧǟ ǴǢȶǑǟ ȝǐʐǨ .cellulose

ȧǿʐǑ ĘǤȒǟ ǛǺǺǏǟ ɄøǬǺǢ ʔǢǵǗ ǑȵǢş ǗǴǑʐȆǴǑǟ ĘǗ8Ǩ ǗɭǅƩǟ ǴǴèǺŧǟ ǴǑʐȆǴǑǟ ǒǟǺǅǗ ǢǵǗ Ž ǧǟʐǬɄɳ

.ɆǢǨƳǟ ȇǺǏǟ Ž ǴǑʐȆǴǑǟ ƙɳǗǨ ɭǬş ǗƙəǺƨǟ ƙǟ ǴǢɿǺǬǟ

Determination of bromine and chlorine ƥǋǂǀǁǋ !ǋƥǴǁǁ ǅǏǏǗǂ

ȸɳ ɳǏ ǺŧǟǑǟǺȆǟ ɭʐǑǬ .ǧǺşǺʐǧǟ Ž ǴǨǨŧǟ ǧǺŧǟ ǴǢȶõ ȧǺǨɄ ǗǨǺǬǗ ǴʐʐòʐŧǟƙǅȆõǧǺǟ ǴǗǅʐǧ ǴǑǺǬ ǑȶǨǬȆǨ

ǑȶǬǑǨ ǺɳǢǺȝ .ǑǺŧǟ ȸɳ Ǒɳ 3ş (ȯ/ȟ 60~) hydrogen peroxide TS ƙǅşǿǢǢǟ ǢǢȆõ şƘǟ ȯʐǗŢ ȸɳ Ǒɳ 17

.ǑǺŧǟ ȸɳ Ǒɳ 40 ǿǟǢǑɳ ǴǗǅʐƩǟ ǢǬǟʐǅş ǗɆǢǨƳǴǟ ȇǺǏǟş ǗɄøǢǨƳǴǟ ǑǗȆǟş ǗǧǺǟǢȆǟ ƸǗǏǨ ǗǴǢǗȶǨǟ

ǧǺǗę Ǘ8ǺȒǨ ɭǬ ȸɳş bromophenol blue/ethanol TS ȯʐǬǺǬǟ/ȯʐǢʐʐɳşƎǟ ǴęǿǨ ȯʐǗŢ ȸɳ ğǟǺǗę 5 8ǺȒǨ

Ż ȸɳş .ȧǿǟɉǟ ƂǗ ǺǺòɉǟ ȸɳ ɭʐǗǟ ȯǢǢǬǺ ɂøǬǧ VS (ȯ/ȯʐɳ 0.1) ȳʐǺǻʐǑǟ ǢǢȆõşǿǢǢȽ ȯʐǗŢ ȸɳ ǗǧǺǗę

diphenyl- ȯʐǬǺǬǟ /ɭşǟǺǿǺõ ǑǢǢʐ ɄəǺǬ ȯʐǗŢ ȸɳ ğǟǺǗę 5ş TS (ȯ/ȟ 3) ǑǺǺǬǟ Ȑƥ ȸɳ Ǒɳ 1 Ƚ8ǺȒǨ

(ȯ/ȯʐɳ 0.01) mercuric nitrate VS ĘǴəǺǟ ğǟǺǬǬ ȯʐǗɄŧǨ ǺǺǺǨş Ǘindicator ǺǨǏŧõ carbazone/ethanol TS

.ʐǢǺǟǟ ɄǅȆǺǴǟ ɭʐǗǟ ƂǗ ȯʐǗǂǟ ȯʐɄǬǺ ɂøǬǧ

.Cl ȸɳ ɳǗɳ 0.709 şǗ Br ȸɳ ɳǗɳ 1.598 ǒżǺǑǨ VS (ȯ/ȯʐɳ 0.01) ĘǴəǺǟ ğǟǺǬǬ ȸɳ Ǒɳ 1 Ǒõ

Determination of fluorine

124 ... 15 ... 40

alizarinsulfonate TS (1) ... 0.6 ... 5 ... VS (0.1) ... thorium ... 3.0 ... acetate buffer TS ... nitrate VS (0.005) ...

F 0.380 ... VS (0.005) ... 1

indicator ... inorganic fluoride.

Determination of iodine

120 ... VS (0.2) ... 10 ... 25 ... 40 ... bromine TS1 ... 15 ... TS ... 20 ... formic acid TS (1080~) ... 5 ... 0.5 ... VS (0.05) ... sodium thiosulfate VS (0.005) ... liberated iodine ... starch TS ... indicator.

I 1.06 ... VS (0.05) ... 1

Determination of sulfur

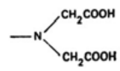
120 ... hydrogen peroxide TS (60~) ... 12.5 ... 40 ... 20 (300~) ... 2 ... 10 ... barium nitrate VS (0.01) ... (750~)

0.2) methylthioninium chloride TS [illegible] 2) thorin TS [illegible] .pink [illegible]

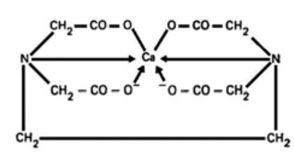
.S [illegible] 0.321 [illegible] VS [illegible] 0.01) [illegible] 1 [illegible]

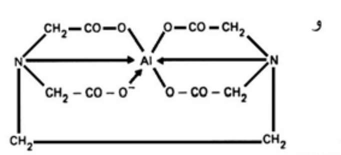
COMPLEXOMETRIC TITRATIONS [illegible]

[illegible] titrants [illegible] complexing agents [illegible] aminopolycarboxylic acids [illegible]:



[illegible] cations [illegible] chelate [illegible] salt-like bond [illegible] electrons [illegible] coordinate bond [illegible] edetic [illegible] chelating [illegible] (ethylenediaminetetraacetic acid, EDTA) [illegible] acid [illegible] .disodium edetate [illegible] Water-soluble 1:1 [illegible] unit [illegible] confer [illegible] complexes [illegible] coordinate bonds [illegible] carbonyl oxygens [illegible] trivalent aluminium [illegible]:





[illegible] metals ([illegible]) [illegible] .pH [illegible] decompose [illegible] alkaline solution [illegible] lead [illegible] zinc [illegible] 8 [illegible] trivalent metal complexes [illegible] chelate rings [illegible] alkaline solutions [illegible] stability [illegible] editic acid [illegible] hydroxides [illegible] .metal hydroxide ([illegible]) [illegible]

Schwarzenbach [illegible] 0.1 [illegible] 20 [illegible]:

1.7	Na
2.8	Li
8.7	Mg
10.6	Ca
14.3	Fe^{2+}
15.5[a]	Al
16.1	Zn
17.6	Pb
20.4	Hg^{2+}
25.1	Fe^{3+}

[a] [illegible] back-titration.

[illegible] murexide [illegible] calcium ions [illegible] Schwarzenbach [illegible] ammonium purpurate [illegible] Mordant Black 11 [illegible] ammoniacal solution [illegible] corresponding [illegible] indicator complex [illegible] edetates [illegible]

[illegible] Mordant Black 11 [illegible] screened [illegible] endpoint [illegible] methyl orange [illegible]

[illegible] pharmaceutical [illegible] potential [illegible] calconcarboxylic acid [illegible] calcon [illegible] sodium edetate [illegible] hydroxide [illegible] magnesium [illegible] pH 12-14 [illegible]

acid-base [illegible] xylenol orange [illegible] iminodiacetic acid [illegible] metal-complexing [illegible] lead [illegible] bismuth [illegible] aluminium [illegible] zinc [illegible] mercury [illegible] 2-6 [illegible]

RECOMMENDED PROCEDURE [illegible]

Aluminium [illegible]

[illegible] 2 [illegible] monograph [illegible] 50 VS (1 [illegible]) [illegible] neutralize [illegible] (0.05 [illegible]) disodium edetate VS [illegible] 50 [illegible] VS (1 [illegible]) [illegible] methyl red/ethanol TS [illegible] 50 [illegible] 10 [illegible] methenamine R [illegible] 5 [illegible] xylenol orange R [illegible] (0.05 [illegible]) lead nitrate VS [illegible] (0.05 [illegible]) disodium edetate VS [illegible] 1 [illegible] 1.349 [illegible] Al.

Bismuth ǀ ǸǰĎŽŘĜǁƐ

ȯzŸ Ț ȸŋ ǦȽȶ Õ Ȁ8ò Ǖ Ž Ûmonograph gấşȀzǵ ǂ ä Ž ȸȽȞ ŋ zȽ Ȧȶ Õ ÛǦȽüzǤȐȶȇ Ǧǫşàzȶ ä Ûgẩȶ ä ȸŋ ǦȽȶ Õ ä äØȽ gȀÛę ǦzȦ ȓ Ǖ ǦÛȅäzǟ 2ş 1 ƙǟ ŏȦȽȦǤöä ÙǤȐȽş ŏȦȶ ä ȸŋ Ōŋ 50 ȣ ȦȐȽş Û(ȯ/ȟ 130~) nitric acid TS ŌȀȀǬȸöä Ȑ ƥ 50 ȣ ȦȐȽ .(ȯ/ȟ 100~) ammonia TS ȦȽǫzŋ ɉ ä ȯzŸ Ț ȸŋ şǕ TS (ȯ/ȟ 130~) ŌȀȀǬȸöä Ȑ ƥ ȯzŸ Ț ȸŋ Ȧŋ Ǖ gȀÛę ȳzȀẩzÔöä ǦȽǝȀȀǬ ǧ ȦǬȀȽȀǕ ȯzŸ Ț ǦÛȅäzǟ ŏÙǤǟ ȀȀȞȽş xylenol orange R ȯzȽȲȀȃöä ǦȽöȦŌȽȀȽ ȀȞ Î ŋ ǰ ȀÂŋ ȸŋ ȽǤȀŌǩ ŋŸŋ Ōõ .ŌŋȦȮöä ȀȀò ɉ ä Б Ǖ ȽŸȀǫȀŌöä ȽDzÊȀȀǤöä ȸŋ ȯzŸ ǂ ä ɉ zȯ ȯzȞǬȀ ʔ ø ǫ ǵ (ȯ/ȯzŋ 0.05) disodium edetate VS

.Bi ȸŋ ŋŸŋ 10.45 ŏżȦȮȽ VS (ȯ/ȯzŋ 0.05) disodium edetate ȳzȀẩzÔöä ǦȽǝȀȀǬ ǧ ȦǬȀȽȀǕ ȯzŸ Ț ȸŋ Ōŋ1

Calcium !ǸǰĭƨǁƑǀǁƐ

ÛŏȦȶ ä ȸŋ ǧ äȀǬö ȽŸȽǬ ȜȐǟ Ž Ûmonograph gấşȀzǵ ǂ ä Ž ȸȽȞ ŋ zȽ Ȧȶ Õ ÛǦȽüzǤȐȶȇ Ǧǫşàzŋ Ûgẩȶ ä ȸŋ ǦȽȶ Õ ä äØȽ Б Ǖ ŏȦȶ Ȁǟ ȤȦȀȽ Ż ȸŋş ÛȀȀøşȀȓ ɉ Ȧ Õ äǽ Ǖ TS (ȯ/ȟ 70~) ŌȀøzŸÕşøȽȽȚä Ȑ ƥ ȯzŸ Ț ȸŋ ǦȽȶ Õ Ōęüǟ ȐȽȶȞȽş ǦǟäȀę ȴDzǵ ʔ ø ǫ ǵ VS (ȯ/ȯzŋ 0.05) disodium edetate ȳzȀẩzÔöä ǦȽǝȦȀǬ ǧ ȦǬȀȽȀǕ ȯzŸȞȶȇ ȀȀȞȽ .Ōŋ 100 Ǧǟ äȀę ȸŋ ȟ 0.1ş TS (ȯ/ȟ 300~) ȳzȀẩzÔöä ȽȽÊÕşøȽȽȽ ȯzŸ Ț ȸŋ Ōŋ 4 ȣ ȦȐȽş ÛǦȞęzǬȶ ä úzȦȮǬöä ǦÛŌǫ ȸŋ Ōŋ 2 calcon ŌȽȽȽÊÕzǟȀÕ ɉ zȮöȦȮöä Ȑ ƥ ȀȞ Î ŋ ǰ ȀÂŋ ȸŋ şǕ calcon indicator mixture R ɉ zȮöȦȮöä ȀȞ Î ŋ ǰ ȀÂŋ Б Ǖ pink ȽŸȀǫȀŌöä Ȁ ƥ ɉ ä ȸŋ ȯzŸ ǂ ä ɉ zȯ ȯzȞǬȀ ʔ ø ǫ ǵ gȀȀȞȶ ä ȜǟȦǬȽş carboxylic acid indicator mixture R 2.004 ŏżȦȮȽ (ȯ/ȯzŋ 0.05) disodium edetate VS ȳzȀẩzÔöä ǦȽǝȀȀǬ ǧ ȦǬȀȽȀǕ ȯzŸ Ț ȸŋ Ōŋ 1 Ōõ .ŌŋȦȮöä ȧøà ɉ ä .Ca ȸŋ ŋŸŋ

Lead ţ ƑȚ ƥǁƐ

ÛŏȦȶ ä ȸŋ Ōŋ 10-5 Ž Ûmonograph gấşȀzǵ ǂ ä Ž ȸȽȞ ŋ zȽ Ȧȶ Õ ÛǦȽüzǤȐŋ Ǧǫşàzŋ Ûgẩȶ ä ȸŋ ǦȽȶ Õ ä äØȽ Ż ȸŋş ÛȀȀøşȀȓ Ōöǟ ɉ Ȧ Õ äǽ Ǖ TS (ȯ/ȟ 300~) acetic acid ŌȽǫȽȅ ɉ ä Ȑ ƥ ȯzŸ Ț ȸŋ ǦȽȶ Õ Ōęüǟ ȐȽȶȞȽş xylenol orange indicator ȯzȽȲȀȃöä ǦȽöȦŌȽȀȽ ȀȞ Î ŋ ǰ ȀÂŋ ȸŋ ŋŸŋ 50 Ǧǟ äȀę ȣ ȦȐȽ .Ōŋ 50 Ǧǟ äȀę Б Ǖ ŏȦȶ Ȁǟ ȤȦȀȽ ȀȀȞȽş gȀȶǵ Б Ǖ ȯzŸ ǂ ä ɉ zȯ ȯzȞǬȀ ʔ ø ǫ ǵ (ȟ 5 Ǧǟ äȀę) methenamine R ƙŋ Ǖ ƙǰȽȶ ä ȸŋ ǦȽzȦÕ ǦȽȶ Õş mixture R ȽDzÊȀȀǤöä ȸŋ ȯzŸ ǂ ä ɉ zȯ ȯzȞǬȀ ʔ ø ǫ ǵ VS (ȯ/ȯzŋ 0.05) disodium edetate ȳzȀẩzÔöä ǦȽǝȀȀǬ ǧ ȦǬȀȽȀǕ ȯzŸȞŋ VS (ȯ/ȯzŋ 0.05) disodium edetate ȳzȀẩzÔöä ǦȽǝȀȀǬ ǧ ȦǬȀȽȀǕ ȯzŸ Ț ȸŋ Ōŋ 1 Ōõ .ŌŋȦȮöä ȀȀò ɉ ä Б Ǖ ȄŋȦ8öä .Pb ȸŋ ŋŸŋ 10.35 ŏżȦȮȽ

Magnesium !ǸǰĭȐǟƩĎŽǁƐ

ÛŏȦȶ ä ȸŋ Ōŋ 10-5 Ž Ûmonograph gấşȀzǵ ǂ ä Ž ȸȽȞ ŋ zȽ Ȧȶ Õ ÛǦȽüzǤȐȶȇ Ǧǫşàzŋ Ûgẩȶ ä ȸŋ ǦȽȶ Õ ä äØȽ

[illegible] TS ([illegible] 70~) hydrochloric acid [illegible]
ammonium chloride [illegible] 10 [illegible] 50 [illegible]
Mordant Black 11 indicator mixture R [illegible] 100 [illegible] TS 10.0 [illegible] buffer TS
[illegible] VS ([illegible] 0.05) disodium edetate [illegible]
VS ([illegible] 0.05) disodium edetate [illegible] 1 [illegible]
.Mg [illegible] 1.215 [illegible]

Zinc [illegible]

[illegible] 10-5 [illegible] monograph [illegible]
[illegible] TS ([illegible] 300~) acetic acid [illegible]
xylenol orange indicator [illegible] 50 [illegible] 50 [illegible]
[illegible] ([illegible] 5 [illegible]) methenamine R [illegible] mixture R
[illegible] VS ([illegible] 0.05) disodium edetate [illegible]
disodium edetate [illegible] 1 [illegible]
.Zn [illegible] 3.268 [illegible] VS ([illegible] 0.05)

NON-AQUEOUS TITRATION [illegible]

[illegible] bases [illegible] acids [illegible]
[illegible] hydroxyl [illegible] hydrogen [illegible] ions [illegible]
[illegible] recognize [illegible] Arrhenius [illegible]
[illegible] Bronsted [illegible]
[illegible] .proton acceptor [illegible] proton donor [illegible]
electron [illegible] Lewis [illegible]
[illegible] neutralization [illegible] pair
.[illegible] coordination bond [illegible]

[illegible]
(H_3O^+) hydronium ion [illegible]
acetic [illegible] protophilic [illegible] .acid anion [illegible]

[illegible] proton [illegible] ($CH_3COOH_2^+$) acetonium ion [illegible] acid
[illegible] perchloric [illegible]
[illegible] .nitric [illegible] hydrochloric [illegible] sulfuric [illegible] hydrobromic [illegible]
[illegible] acetic acid [illegible]
[illegible] ethylenediamine [illegible] base [illegible]
[illegible]

[illegible] leveling effect [illegible]
[illegible]
[illegible] butylamine [illegible] pyridine [illegible] phenol [illegible]
[illegible]
[illegible] potassium methoxide [illegible]
[illegible] lithium methoxide [illegible] sodium methoxide [illegible]
.tetrabutylammonium hydroxide

[illegible]
[illegible]
[illegible] physiologically active [illegible]
[illegible] .titrant [illegible]
[illegible] pharmaceutical preparations [illegible] ingredient [illegible]
.carriers [illegible] excipients [illegible]

[illegible] acid halides [illegible] types [illegible]
[illegible] amino acids [illegible] carboxylic acids [illegible] acid anhydrides [illegible]
[illegible] phenols [illegible] imides [illegible] xanthines [illegible] barbiturates [illegible] enols
[illegible] amins [illegible] .sulfonamides [illegible] pyroles
[illegible] quarternary ammonium [illegible] hetrocyclic [illegible]
[illegible] inorganic acids [illegible] alkali salts [illegible]
[illegible] halogen acids [illegible]
halide ion [illegible] mercuric acetate [illegible] acetic anhydride [illegible]

[illegible] unionized mercuric halide [illegible]
[illegible] acetylatable groupings [illegible]
.crystal violet [illegible] malachite green [illegible]
[illegible]
[illegible]

[illegible] volumetric [illegible] basic compound [illegible]
[illegible] glacial acetic acid [illegible] perchloric acid [illegible]
[illegible] dioxin [illegible]
[illegible] .methanol-toluene [illegible] lithium methoxid [illegible]
[illegible] tetrabutylammonium hydroxide [illegible]
[illegible] sodium methoxide [illegible]
[illegible] gelatinous [illegible]

[illegible]
[illegible] atmosphere [illegible]
[illegible] 1 [illegible] 0.1 [illegible] 0.01 [illegible] blank
[illegible]

[illegible] .potentiometrically [illegible]
[illegible] calomel [illegible] reference [illegible] electrode [illegible]
[illegible] /lithium perchlorate [illegible] salt bridge [illegible]
[illegible] acetic acid TS
[illegible] crystal violet [illegible]
[illegible] establishing [illegible]
[illegible]
[illegible] V [illegible] electromotive force [illegible] E [illegible] dE/dV [illegible]
[illegible]

[illegible] coefficient [illegible]
compensant [illegible] expansion

[illegible]
. [illegible] standardized

RECOMMENDED PROCEDURES [illegible]

[illegible] **Method A** [illegible]

[illegible]
crystal [illegible] neutralized [illegible] glacial acetic acid R1
[illegible] blank [illegible] violet/acetic acid TS
[illegible] determination [illegible] indicator [illegible]
[illegible] .mercuric acetate/acetic acid TS [illegible] 10 [illegible]
[illegible] TS [illegible] 3-2 [illegible]
[illegible]
[illegible] R1 [illegible] monograph
.titrant [illegible] standardization [illegible] TS [illegible]

[illegible] potentiometrically [illegible]
[illegible] electrode [illegible]
[illegible] (TS [illegible] 350) [illegible] saturated calomel cell
[illegible]
[illegible]
[illegible]

[illegible] (t_1) [illegible] (t_2) [illegible]
[illegible] assay [illegible] $[1 + 0.001\ (t_1 - t_2)]$ [illegible]
[illegible]

[illegible] **Method B** [illegible]

[illegible]
[illegible]

[illegible] .determination [illegible]

[illegible].

[illegible] potentiometrically [illegible] equivalence [illegible] established [illegible]

[illegible].

[illegible] reference electrode [illegible] electrode [illegible] aqueous potassium chloride [illegible] saturated calomel [illegible] R [illegible] TS [illegible] 3.50) [illegible] electrical resistance [illegible]

[illegible].

NITRITE TITRATION [illegible]

aromatic amines [illegible].

[illegible] electrometric [illegible] circuit [illegible] platinum [illegible] device [illegible] 100-50 [illegible] potential [illegible] current [illegible] 1- 0.1 [illegible] .indicating needle

[illegible] magnetic stirring [illegible] mechanical [illegible] nitrogene [illegible] 0.5 [illegible] 20 [illegible] 1000~) nitric acid TS [illegible] ferric chloride R [illegible] 1 [illegible].

RECOMMENDED PROCEDURE [illegible]

[illegible] 50 TS [illegible] 250~) [illegible] 20 [illegible]

[illegible] catalyst [illegible]
[illegible] (0.1 [illegible]) sodium nitrite VS [illegible] 15 [illegible]
[illegible] burette tip [illegible]
.15 [illegible] vortex [illegible]
[illegible] 0.1 [illegible] 1 [illegible]
[illegible] deflects [illegible] 1 [illegible]
.[illegible] reagent [illegible]

[illegible]

DETERMINATION OF WATER BY THE KARL FISCHER METHOD

[illegible] Karl Fischer [illegible]
anhydrous [illegible] iodine [illegible] sulfur dioxide [illegible]
.[illegible] pyridine
[illegible]
.atmospheric moisture [illegible]

[illegible] gas inlet tube [illegible]
[illegible] vent tube [illegible] burette tip [illegible]
[illegible] side arm [illegible] .desiccant
[illegible] TS [illegible] .airtight [illegible]
[illegible] .automatic burette [illegible]
[illegible]
.[illegible]

[illegible] electrical circuit [illegible]
[illegible] V 2 [illegible] V 1.5 [illegible] platinum electrodes [illegible] microammeter
[illegible] .Ω2000 [illegible] resistance [illegible]
[illegible]
[illegible] 15-10 [illegible]
50-30 [illegible] .voltametric [illegible]

[illegible] polarizing current [illegible] .microvoltmeter [illegible] potential difference [illegible] .voltage [illegible] plotting [illegible] graphically [illegible] .potential [illegible] versus

RECOMMENDED PROCEDURES [illegible]

A [illegible] **Direct titration** [illegible]

[illegible] dehydrated methanol R [illegible] 20 [illegible] .TS [illegible] 1 [illegible] .Karl Fischer reagent TS [illegible]

B [illegible] **Backtitration** [illegible]

[illegible] dehydrated methanol R [illegible] 10 [illegible] .TS [illegible] TS [illegible] 1 [illegible] 1 [illegible]

[illegible] R [illegible] TS [illegible] 2.5 [illegible]

DETERMINATION OF METHOXYL [illegible]

[illegible] methoxy-groups [illegible] methyl iodide [illegible] distilled [illegible] hydriodic acid [illegible] .titrimetrically [illegible]

Apparatus [illegible]

[illegible] 25 [illegible] flask [illegible]

[illegible] .carbon dioxide [illegible] 1 [illegible]
[illegible] 9 [illegible] 25 [illegible] condenser
[illegible] 5 [illegible] 2 [illegible] scrubber device
[illegible] .TS (50 [illegible]) antimony sodium tartarate [illegible]
[illegible]
[illegible]
[illegible].

RECOMMENDED PROCEDURE [illegible]

[illegible]
[illegible] TS (970~ [illegible]) [illegible] 5 [illegible] melted phenol R [illegible] 2.5 [illegible]
[illegible] 6 [illegible] TS [illegible]
[illegible] .R [illegible] 6 [illegible] 4 [illegible]
[illegible] R [illegible]
[illegible] mantled microburner ([illegible]) [illegible]
[illegible] 30 [illegible]
250 [illegible]
[illegible] .TS (150 [illegible]) [illegible] 5 [illegible]

1080~) ([illegible]) [illegible] 125 [illegible]
[illegible] 12 [illegible] .TS ([illegible]
[illegible] TS (1080~ [illegible])
[illegible] 5 [illegible] R [illegible] 1 [illegible] 2-1 [illegible]
[illegible] VS (0.1 [illegible]) [illegible] TS (100 [illegible]) [illegible]
VS (0.1 [illegible]) [illegible] TS [illegible]
[illegible].

.(CH₃O) [illegible] 0.5172 [illegible] VS (0.1 [illegible]) [illegible] 1 [illegible]

DETERMINATION OF NITROGEN [illegible]

RECOMMENDED PROCEDURES [illegible]

A [illegible] **Procedure for macrodetermination** [illegible]

[illegible] 1 [illegible] 200 [illegible] R [illegible] R [illegible] 10 [illegible] nitrogen- ([illegible] 1760~) [illegible] copper (II) sulfate R [illegible] free sulfuric acid TS [illegible] 30 [illegible] granulated zinc R [illegible] 85-75 [illegible] 25 [illegible] R [illegible] 2 R [illegible] 15 [illegible] boric [illegible] 16 [illegible] VS ([illegible] 0.005) [illegible] ([illegible] 50) acid TS [illegible] TS .N [illegible] 1.401 [illegible] VS ([illegible] 0.05) [illegible] 1 [illegible]

B [illegible] **Procedure for microdetermination** [illegible]

[illegible] 3 [illegible] 1760~) [illegible] 1 TS ([illegible] 190) copper (II) sulfate [illegible] 10 R [illegible] 1 [illegible] 10 [illegible] TS ([illegible] digestion tube [illegible] 1 [illegible] selenium R ([illegible] 400~) [illegible] 6 [illegible] microdistillation [illegible] 50) TS [illegible] 5 [illegible] 7 [illegible] TS [illegible] TS methylthionium [illegible] 5 ([illegible] .VS ([illegible] 0.015) [illegible] VS ([illegible] 0.015) [illegible] 1 [illegible]

.N [illegible] 0.210

DETERMINATION OF IODINE VALUE [illegible]

[illegible] 100 [illegible] %70 [illegible]

[illegible]	Iodine value [illegible]
1.0	20 [illegible]
0.25 - 0.5	60 - 20
0.15 - 0.25	100 - 60
0.15 - 0.10	100 [illegible]

RECOMMENDED PROCEDURE [illegible]

[illegible] 300 [illegible] 500 [illegible] 15 [illegible] carbon R tetrachloride [illegible] 30 [illegible] iodine bromide TS [illegible] 25 [illegible] 150 TS (80 [illegible]) [illegible] 20 [illegible] TS [illegible] VS (0.1 [illegible]) [illegible] (*a*) [illegible] VS (0.1 [illegible]) [illegible] (*b*) [illegible]:

$$\frac{(b-a)\times 0.01269\times 100}{\text{([illegible]) [illegible]}} = \text{[illegible]}$$

[illegible]

DETERMINATION OF PEROXIDES IN FIXED OILS

RECOMMENDED PROCEDURE [illegible]

[illegible] 3 [illegible] 15 [illegible]

[illegible] 250 [illegible] 30 [illegible] 1 [illegible] 1.3 [illegible] 1 [illegible] 100 [illegible] 3 [illegible] TS [illegible] VS [illegible] 0.01 [illegible]

DETERMINATION OF SAPONIFICATION VALUE [illegible]

fatty acids [illegible] 1 [illegible] hydrolysis [illegible]

[illegible] blank [illegible] 50 [illegible] 35.5 [illegible] VS [illegible] 0.5 [illegible] 40 [illegible]

RECOMMENDED PROCEDURE [illegible]

200 [illegible] 2 [illegible] reflux [illegible] TS1 [illegible] 25 [illegible] 30 [illegible] condenser [illegible] TS [illegible] 1 [illegible] VS [illegible] 0.5 [illegible] VS [illegible] 0.5 [illegible] (*a*) sample [illegible] (*b*) [illegible] VS [illegible] 0.5 [illegible] formula [illegible]:

$$\frac{(b-a)\times 0.02805\times 1000}{[illegible]} = [illegible]$$

[illegible]

DETERMINATION OF UNSAPONIFIABLE MATTER

[illegible] "unsaponifiable matter [illegible]" term [illegible] alkali hydroxides [illegible] ether [illegible].

0.5) 25 1
50 VS
50 3
R R R
separator
20
R fat
20 20
VS 0.5)
20 20
TS
R 3

60 °
TS 750~) 10 80 °
TS
TS VS 0.1) carbonate-free sodium hydroxide
VS 0.1)
0.2
0.1)
0.2 VS

DETERMINATION OF ACID VALUE

1

RECOMMENDED PROCEDURE [illegible]

[illegible] 50 [illegible] 250 [illegible] 10 [illegible] TS [illegible] 750~) [illegible] TS [illegible] 1 [illegible] VS [illegible] 0.1) [illegible] VS [illegible] 0.1) [illegible] 15 [illegible] (a) [illegible]

$$\frac{\alpha \times 0.00561 \times 1000}{\text{[illegible]}} = \text{[illegible]}$$

BIOLOGICAL METHODS ƕĭɯNjǁNjĭƓǁɛ 5ƥǓ’ǁɛ

[illegible]

MICROBIOLOGICAL ASSAY OF ANTIBIOTICS

[illegible] International Biological Standard [illegible] microorganism [illegible] International Biological Reference Preparation [illegible] International Chemical Reference Substance [illegible] validated [illegible] inhibition [illegible] .assay [illegible] dilutions [illegible] .turbidimetric [illegible]

[illegible] International Unit [illegible] International [illegible] International Biological Standard [illegible] WHO [illegible] Biological Reference Preparation [illegible] Biological Standardization [illegible] .vial [illegible] ampoule [illegible]

[illegible]

RECOMMENDED PROCEDURE [illegible]

[illegible] 4-3 [illegible] Petri dishes [illegible] inoculum [illegible] culture medium [illegible]

agar .inoculated dose 100 1 vegetative .inoculation 50 - 48 molten agar medium flat bottoms 4 30 10 sterile stainless 5 10 - 8 steel

logarithm 1:2 rectilinear Latin square pipette

[illegible] 1.5± [illegible] 16 [illegible] 0.1 [illegible] bioassays.

[illegible] strain [illegible] (4 [illegible]) [illegible] designations [illegible]:

NCTC – [illegible] Colindale [illegible]

NCYC – [illegible] Yeast [illegible] Brewing [illegible] Nutfield [illegible] Redhill [illegible] Surrey [illegible]

ATCC – [illegible] Rockville [illegible] Maryland 20852 [illegible]

[illegible]

Precision of the assay [illegible]

[illegible] fiducial [illegible] limits (P = 0.95) [illegible]

Calculation of results [illegible]

[illegible]:

1. *Specification for the quality control of pharmaceutical publications (Second edition of International Pharmacopoeia)*, Geneva, World Health Organization, 1967, Appendix 45: Biological assays and

tests.
2. C. I. BLISS: *Statistics of bioassay*, New York, Academic Press, 1952.
3. C. I. BLISS*: Statistics in biology*, vol. I, New York, McGraw Hill, 1967
4. C. I. BLISS: *Statistics in biology*, vol. II, New York, McGraw Hill, 1970
5. D. J. FINNEY: *Statistical methods in biological assays*, London, Griffin, 1964.
6. W. HEWITT: *Microbiological assay*, New York, Academic Press, 1977.
7. J. PHILLIPPE: *Les methods statistique en pharmacie et en chimie,* Paris, Masson, 1967.

ǦƖşǻǰ ƘǩèǻȸǤ ÆƖÆȞ Ž Ǧƨǫòƨƞ ǦƖƨƎΣ ğǻǻȒƚ ǦƎƩƨöƨƎşȌǚ ǦÊƖȌƚ ɄǝȌǵq ǇƎȌȌ ǦȌǘÛǚ ȧÀÛ
.ǦƎƭƎƔǫş ǦƎÀùƨ

ǦƖǻÀÀ ǦƖƨƎΣ ğǻǻȒǚ ǦÊƖȌȟ ȓşÀìş ǦƌΣ øǻƍǹƨ ğǻȌǾ .4 òşÆƨ

ǥøÀǥ ǦƊøǻ (°ÿ) ȸȒΣ	ğǻÆǥƨ şǖ ȷàƨ) ÂƎÕÀ ᵇ(Ōȵ 1 ŌÕ Ž ǦƎşÆ	Ûğ ÀÊ ǦǝøǻTS ÛªǒȽ ÛǦƭƎÕȞ	ÜǨǦÊǚ ǦƎǝȚ ǒȽ	øǻƍǹƨ Ʉǥ ȸȌÕ Test organism	ɃƨƎΣ ǻȒǚ Antibiotic
37 35	IU ǦƎşǻ ǥÆǥş 4-1	7.0	ÜCm1 7.1 7.0	*ǒÀÔ ǥÆȬǚ* Micrococcus luteus NCTC 7743; ATCC 10240	ƙèÀèȽ Bacitracin
31 30	IU ǦƎşǻ ǥÆǥş 4-1	6.0	ÜCm1 6.6 6.5	*ǒÀÔ ǥÆȬǚ* NCTC 7743; ATCC 10240	
35 32	ÿÀȡ şÀÕȵ 40 10	6.0	ÜCm1 6.6 6.5	*ǦƎȽØ ǦƖǻƨÕȞ* *Staphylococcus aureus* NCTC 6571; ATCC 9144	ƙÊÒÀÊ Cefalexin
35 32	ÿÀȡ şÀÕȵ 40 10	6.0	ÜCm1 6.6 6.5	*ǦƎȽØ ǦƖǻƨÕȞ* ATCC 6538-P	
35 32	IU ǦƎşǻ ǥÆǥş 2 0.5	6.0	ÜCm1 6.6 6.5	*ǦƎȽØ ǦƖǻƨÕȞ* ÜNCTC 6571 ATCC 9144	ƙǩƨÀÊ Cefalotin
35 32	IU ǦƎşǻ ǥÆǥş 2 0.5	6.0	ÜCm1 6.6 6.5	*ǦƎȽØ ǦƖǻƨÕȞ* ATCC 6538-P	
39 37	IU ǦƎşǻ ǥÆǥş 20 2	4.5	ÜCm1 6.6 6.5	*ǦƎƞƨ ǦƖƨÕȞ* *Bacillus pumilus* ÜNCTC 8241 ATCC 14884	ƙŸÒèÀǩøƨŸÒ Chlortetracycline

ǥǿǟÀǵ ǦǅǶǿǻ (°ÿ) ȸȒȨǟ	ğǟǼǵǷǚǟ şǕ ȷàǷǚǟ) ÂǼÕÀǪǚǟ ᵇ(Ȯŋ 1 ǑǑ Ž ǦǁōşǼǚǟ	ÛğǺÀÊǺǚǟ Ǧǝǿǟǻ TS ÛªǒǺȽǺǦǚǟ ÛǦȶǁÕǺǚǟ	ÜĶǦǺǪÊţǟ ǦǁǝǺȾǺǚǟ ǒǺȽǺǦǚǟ	ǿǺǪǹɼǟ ȗǵ ȸǝǺÕ Test organism	ȾǷǁƩǟ ǻǺȒţǟ Antibiotic
33 30	IU Ǧǁōşǻ gǼǵş 0.2 0.05	4.5	ÜCm1 6.0 5.9	ǦǁĦȶ Ȋǒǟ ǦǀǷȎǁǚǟ *Bacillus cereus* ATCC 11778	
39 37	ÿǟÀɖ şÀȮŋ 20-5	7.0	ÜCm1 6.6 6.5	ǦǑǁȩǺǚǟ ǦǀǷȎǁǚǟ *Bacillus subtilis* ÜNCTC 8236 ATCC 11774	ƙǁèǺÊǑǷǛȮǚǟ Cloxacillin
35 32	ÿǟÀɖ şÀȮŋ 8-2	6.0	ÜCm1 6.6 6.5	ǦǁȽǾǚǟ ǦǀǻǷȰǺǁǚǟ ATCC 6538-P	
39 37	ÿǟÀɖ şÀȮŋ 10-2.5	6.0	ÜCm1 6.6	ǦǁȽǾǚǟ ǦǀǻǷȰǺǁǚǟ ÜNCTC 6571 ATCC 9144	ƙǛèǺÊǑǷǛȮǺǻ Dicloxacillin
35 32	ÿǟÀɖ şÀȮŋ 8-2	6.0	ÜCm1 6.6 6.5	ǦǁȽǾǚǟ ǦǀǻǷȰǺǁǚǟ ATCC 6538-P	
39 37	IU Ǧǁōşǻ gǼǵş 25-5	8.0	ÜCm1 8.1 8.0	ǦǁǛǼŋǷǦǚǟ ǦǀǷȎǁǚǟ ÜNCTC 8241 ATCC 14884	ƙÊǼŋşÀǯǺǿɼǟ Erythromycin
37 35	IU Ǧǁōşǻ gǼǵş 1.5-0.5	8.0	ÜCm1 8.1 8.0	ǒǟÀȦÔǚǟ ǥÀǁȮţǟ ATCC 9341	
39 37	Ǧǁōşǻ gǼǵş 14-2	8.0	ÜCm1 8.1 8.0	ǦǁǛǼŋǷǦǚǟ ǦǀǷȎǁǚǟ ÜNCTC 8241 ATCC 14884	ƙÊǼŋǷǼǚǟ Neomycin
37 35	Ǧǁōşǻ gǼǵş 20-2	8.0	ÜCm1 8.0 7.8	ǦǁȽǾǚǟ ǦǀǻǷȰǺǁǚǟ ATCC 29737	
37 35	Ǧǁōşǻ gǼǵş 2.05	8.0	ÜCm1 8.1 8.0	ǦǀşÄȊǁǚǟ ǦǀǻǷȰǺǁǚǟ Staphylococcus epidermidis ATCC12228	
33 30	Ǧǁōşǻ gǼǵş 5-1	6.0	ÜCm1 6.6 6.5	ǦǑǁȩǺǚǟ ǦǀǷȎǁǚǟ ÜNCTC 10315	ƙèǷǼǷǷǷǺǚǟ Novobiocin
35 30	Ǧǁōşǻ gǼǵş 50-10	6.0	ÜCm1 6.6 6.5	ǒǟÀȦÔǚǟ ǥÀǁȮţǟ ATCC 9341	
37-35	Ǧǁōşǻ gǼǵş 300-25	cø	ÜCm3 6.2 6.0	ǦǷǁǛǝǟ ǒǟĶǑÊǚǟ *Saccharomyces cervisia* ÜNCYC 87 ATCC 9763	ƙǺǪÊǚǟ Nystatin

ǥøäÀǵ ǦDZǿá (°ÿ) ȸȐƩä	ǧäÆǵǷöä ʂÜ ȷàǷöä) ÂȄȭÀǪöä ᵇ(Öŋ 1 Ȭȭ Ž ǦĿöʂÆöä	ÛǧÀÀÊÀöä Ǧəøäá TS ÛªǒÀĿÀǦöä ÛǦȶĿȬȞöä	ÜȞǦÀǪÊȶä ǦĿəÀȚÀöä ǒÀĿÀǦöä	øÀǪǹɍä Ʉǵ ȸəÀȭ Test organism	ɃǷĿƩä áÀȒȶä Antibiotic
39 37	ÿäÀȡʂÀȮŋ 10-2.5	7.0	ÜCm1 6.6 6.5	*ǦǑĪȩÀöä ǦÀǷÔȞöä* ÜNCTC 8236 ATCC 11774	ƙǞèÀÊȭǧä Oxacillin
35 32	ÿäÀȡʂÀȮŋ 8-2	6.0	ÜCm1 6.6 6.5	*ǦȞĿȰöä ǦÀáǷÔȞöä* ATCC 6538-P	
39 37	ǦĿöʂá ǥÆǵʂ 20-2	4.5	ÜCm1 6.6 6.5	*ǦĿÏĿŋǷǦöä ǦÀǷÔȞöä* ÜNCTC 8241 ATCC 14884	ƙÝȮĿèäÀǪǩ ɄÊȭʂÜ Oxytetracycline
33 30	ǦĿöʂá ǥÆǵʂ 2-0.5	4.5	ÜCm1 6.0 5.9	*ǦĿȞȶÎöä ǦÀǷÔȞöä* ATCC 11778	
37 35	ǦĿöʂá ǥÆǵʂ 100-20	TS3 Û6.0	ÜCm2 7.3 7.2	*ǧÀǦÔȬÝö ǦÀǪÀȶä ǦĿÏĿǪÀáøǷǦöä* *Bordetella bronchiseptica* ÜNCTC 8344 ATCC 4617	ƙÊȮĿȶĿöǷǦöä Polymyxin B
37 35	ǦĿöʂá ǥÆǵʂ 200-50	7.2	ÜCm2 7.3 7.2	*ǧÀǦÔȬÝö ǦÀǪÀȶä ǦĿÏĿǪÀáøǷǦöä* ÜNCTC 8344 ATCC 4617	
37 35	ǦĿöʂá 100-5	7.2	ÜCm1 6.6 6.5	*ǦĿŋǷǿǷȬöä ǦĿȮÀǨÎÀɍä* *Escherichia coli* ATCC 10536	
39 37	ǦĿöʂá ǥ20-5	8.0	ÜCm1 8.0 7.9	*ǦǑĪȩÀöä ǦÀǷÔȞöä* ÜNCTC 8236 ATCC 11774	ƙÊĿŋǷǪÀÀǪÊöä Streptomycin
37 35	ǦĿöʂá ǥÆǵʂ 15-3	8.0	ÜCm1 8.1 8.0	*ǦǑĪȩÀöä ǦÀǷÔȞöä* ATCC 6633	
39 37	ǦĿöʂá ǥÆǵʂ 20-2	4.5	ÜCm1 6.6 6.5	*ǦĿÏĿŋǷǦöä ǦÀǷÔȞöä* ÜNCTC 8241 ATCC 14884	ƙÝȮȇäÀǪǪöä Tetracycline
33 30	ǦĿöʂá ǥÆǵʂ 2-0.5	4.5	ÜCm1 6.0 5.9	ǦĿȞȶÎöä ǦÀǷÔȞöä ATCC 11778	

.TS2 ʂÜ TS,TS1 ȮȮȉ ɁÝȝ ǥÀȶÊȶä ÜøäʂÆöä ȮȶȞǪÊĿ ȷÜ ȸȮƩ .ÆèÀÀŋ ǒÀĿÀǣ ǧäǣ ǦȶĿȬȝ ÛǧÀÀÊÀöä Ǧəøäá *a*

ǦǦèÀÀŋ ÂȄȭäÀǩ ȼȄǷ ÆDZǷǩ ȷÜ ȸȮƩ ɃØöä ȯÀȮä *b*

ȬĿǮĿŋ ɄəÀÀǷ ǥÆȝÀÊŋ ǥáʂÀǷɉä Ž ȢǷȍǷŋ ǷĿ ÀȶȬ øÀǪǹɍä ǥáÀȶ ĘǷäǷȶä ǷĿÀǺǪöäʂ ǦĿȞDZÀȶä ǥáÀȶä ȯǷÝȚ ȰȒƠ ȴǪÀ *c*

.TS3 6.0 ǒÀĿÀǦöä ÛǦȶĿȬȝ ÛǧÀÀèǷǷ Ǧəøäáʂ dimethylformamide R ÆĿŋÀŋøǷǷ

Culture media [illegible]

[illegible] (4 [illegible]) [illegible] (Cm) [illegible] .(167 [illegible]) "List of reagents, test solutions and volumetric solutions [illegible].

Preparation of inoculum [illegible]

.Bacillus subtilis [illegible] *Bacillus pumilus* [illegible] *Bacillus cereus* [illegible] 6.6-6.5 [illegible]) Cm1 [illegible] 39-37 [illegible] 7 [illegible] 1 [illegible] manganese sulfate R [illegible] 1 [illegible] 70 [illegible] 30 [illegible] sterile [illegible] 1 [illegible] 10^8 - 10^7 [illegible] spores [illegible] 4 [illegible].

[illegible] *.Bordetella bronchiseptica* [illegible] 37-35 [illegible] 6.6-6.5 [illegible]) Cm2 [illegible] –1 [illegible] opacity [illegible] saline TS [illegible] sterile [illegible] 650 [illegible] %50 [illegible] 4 [illegible].

[illegible] vehicle [illegible] inoculum [illegible] peptone [illegible] TS2 [illegible] 70– [illegible].

6.6-6.5 [illegible]) Cm1 [illegible] *.Micrococcus luteus* [illegible] saline TS [illegible] 37-35 [illegible] %80 [illegible] 50 [illegible] 1 [illegible] 4 [illegible] 650 [illegible] vehicle [illegible] inoculum [illegible] peptone [illegible] TS2 [illegible] 1) [illegible] 70– [illegible].

[illegible]) Cm3 [illegible] *.Saccharomyces cerviciae* [illegible] saline TS [illegible] 37-35 [illegible] 6.2-6.0 [illegible] %50 [illegible] –1 [illegible]

[illegible] 650 [illegible] 4 [illegible]°

[illegible] 70– [illegible] TS2 [illegible]

Staphylococcus aureus [illegible] Cm1 [illegible] 6.6- [illegible]

[illegible] 6.5 [illegible] 37-35 [illegible] saline TS [illegible]

[illegible] %50 [illegible] 1 [illegible]

[illegible] 650 [illegible]

[illegible]

[illegible] 70– [illegible] TS [illegible] 5 [illegible]

STERILITY TESTING OF ANTIBIOTICS [illegible]

[illegible] microorganisms [illegible]

Test conditions [illegible]

[illegible] aseptic [illegible] air filters [illegible] germicidal [illegible] disinfecting [illegible] disinfecting aerosols [illegible] laminar flow [illegible] environment [illegible] static free clothing [illegible] hood [illegible] settle [illegible] particulate [illegible] slit-sampling [illegible] plates [illegible]

Membrane filtration apparatus [illegible]

[illegible] porosity [illegible] 47 [illegible] 0.45 [illegible] nominal [illegible] 700 [illegible] 90 [illegible] 75-55 [illegible]

[illegible]

[illegible] Sampling

[illegible]

[illegible] Culture media

[illegible] fungi [illegible] bacteria [illegible] anaerobic [illegible] aerobic [illegible] variety [illegible] manufacturing [illegible] mercaptoacetate [illegible] criteria [illegible] (Cm5 [illegible]) [illegible] (Cm4 [illegible]) (thioglycolate [illegible]) [illegible] strains [illegible] (100 [illegible]) [illegible] 24 [illegible] lot [illegible] over sterilization [illegible] overheating [illegible]

RECOMMENDED PROCEDURES [illegible]

Membrane filtration test procedure [illegible]

[illegible] (container [illegible] 6-0.3) [illegible] TS1 [illegible] 1) [illegible] 200 [illegible]

[illegible] 400 [illegible] TS1 [illegible] 1) [illegible] TS1 [illegible] 1) [illegible]

[illegible] penicillinase TS [illegible] (cephalosporin [illegible] penicillin [illegible]

[illegible] Cm4 [illegible] 100-50 [illegible] 100-50 [illegible] (soybean-casein digest medium [illegible]) Cm5

[illegible] control test [illegible] 100-50 [illegible]

Direct test procedure [illegible]

[illegible] 0.3 [illegible] 10 - 1 [illegible] Cm6 [illegible] 100 - 50 [illegible] Cm7 [illegible] 100 - 50 [illegible]

[illegible] 1.0 [illegible] Cm6 [illegible] ATCC 6538-P [illegible] 100.50 [illegible] Cm4 [illegible] 24 [illegible] 32 - 30 [illegible]

Incubation [illegible]

Cm4 [illegible] 7 [illegible] Cm5 [illegible] 32 - 30 [illegible] (Cm6 [illegible] 25 - 22 [illegible] (Cm7 [illegible]

[illegible]

Interpretation of test results

UNDUE TOXICITY

RECOMMENDED PROCEDURE

TEST FOR PYROGENS

Test animal [illegible]

[illegible] 2± [illegible] *ad libitum* [illegible] excite [illegible]

[illegible] 48 [illegible] 0.5 [illegible]

Temperature recording [illegible]

[illegible] 0.1 [illegible] temperature- [illegible] 6 [illegible] sensing device [illegible]

RECOMMENDED PROCEDURE [illegible]

[illegible]

30 [illegible] 40 [illegible]

[illegible] 1.0 [illegible] deviate [illegible] 0.2± [illegible]

[illegible] 39.8 [illegible] 38.0 [illegible]

[illegible] 250 [illegible] glassware [illegible] 38 [illegible] 30 [illegible] 1 [illegible] 10 [illegible] 3 [illegible] marginal [illegible] 4 [illegible] 30 [illegible] 3 [illegible]

[illegible] 0.6 [illegible] 1.4 [illegible] 1.4 [illegible] 0.6 [illegible] 8 [illegible] 3 [illegible] 5 [illegible] 3.7 [illegible] 0.6 [illegible]

[illegible]

TEST FOR HISTAMINE-LIKE SUBSTANCES (VASODEPRESSOR SUBSTANCES)

[illegible]

RECOMMENDED PROCEDURES [illegible]

[illegible]

[illegible] chloralose R [illegible] barbiturate [illegible] trachea [illegible] carotid artery [illegible] vagus nerve [illegible] cannula [illegible] saline TS [illegible] mercury manometer [illegible]

[illegible] jugular [illegible]
[illegible] heparinized saline TS [illegible]
[illegible] recording kymograph [illegible]
[illegible] excursion [illegible] tracings [illegible]
0.1 [illegible] (A [illegible]) [illegible] 0.05 [illegible] TS [illegible]
[illegible] (C [illegible]) [illegible] 0.15 [illegible] – [illegible] – (B [illegible]) [illegible]
[illegible] 1 [illegible] histamine base
[illegible]
[illegible] B [illegible]
([illegible] 20) [illegible] 2.7 [illegible] B [illegible]
[illegible] C [illegible] B [illegible] A [illegible]
.B [illegible]

[illegible] saline TS [illegible] 2.0 [illegible]

B [illegible] B [illegible]
[illegible] 1 [illegible]
[illegible] A [illegible]
[illegible] C [illegible] C [illegible]

[illegible] (*a*) [illegible]
[illegible] (*b*) C [illegible]
[illegible] B [illegible] C [illegible]
[illegible]
[illegible] 1 [illegible] 0.1) [illegible] B [illegible]

ȯζŸȚ ȸŋ C Ǧʒ̀Àƨǟ ȸŋ ƎȭǕ ǦȒζȦǹ ǦǟȦDzǪȅǟ ǿȦǤǪǹɍǟ ȯζŸȚ ȸŋ ǥǼǵǟş ǦǻǻÀζ Ǧʒ̀ÀDZ ǦǕ ǫǼĦǰ ɍş Û(ȷǟζŦΣǟ ȷȁş
.(ȷǟζŦΣǟ ȷȁş ȸŋ ŊŸȭ 1 ŌȮǒ ƙŋȦǪÊŦŢǟ ȃȦȅǕ ȸŋ ȳǟÀȡşÀȮŋ 0.15) ɃǿȦǼȞȼǟ

METHODS OF PHARMACOGNOSY ƥĭƼƑƽyǁɛ !ǂƳ ƼƥƯ

ƒ ǅŽΘǁƐ Ǐ ʓ ƒƐǋǰƤǁƐ ƥĭƷ ơǇDŽƥǁƐǋ ơǇDŽƥǁƐ ǅžĩĩƴƗ

DETERMINATION OF ASH AND ACID-INSOLUBLE ASH

RECOMMENDED PROCEDURES Ǵnjǖ Ǐ Ƭ Ădž!ƒ ƘƒƇƒƧɳǗƒ

Determination of ash ơǇDŽƥǁƐ ǅžĩĩƴƗ

ǑƐǤè ɂŸɜ) ȟøǺȥ ȨǤù Ž Û ǥåşǠȥǵ ä Ž ǦǼƎȞƫä ǦƐȶȮöä şǗ ÛǦƐùȥǤȒɳ Ǧǫşàȥɳ ÛǦęȥĦÊƫä ǥåǺƫä ȡɳ ȟ 3 ǦæäǞǬ Ʒȓȥƚ ȡɜ ǼǺÂǨ ɍ ÛƙǺÊǪŸö ǦƐƶøǼǨ ǥåǺǺäǢ ǥåǺƫä ǼɳǞƚ .ȷşàȥƫäş åƎƫäş ÛǞǑǦÊɳ ǢƐƵŸƫä Û (ƙǨƳǤöä şǗ ǺȮƐŸƐÊöä ȡɳ ÛȯǺǯƫä ÛǦǬǺǞÛöä ȻǾȽ Ž ȷȥæǞȮöä ȡɳ ȯǺǹ åǺɳø ɂŸɜ ȯȥÔΣä ɭǪǺ Ɓ äæǗ .ȷàȥǺş åƎǺ Üȷȥæ ǞȮöä ȡɳ ȥŸʅä ɂøǪǵ Û°ÿ 450
ÛǴƐìǞǪöä ȧøşş ǦöǺȶǰöä ǼɳǞƚ ÛåǺɳǞöä ȡɳ ȯǺǹ ǴƐìǞǨ ȧøş ɂŸɜ ǦöǺȶǰöä ƷȶǅžƚÛȡǹǺÊöä ŏǺƫǺæ ǦȶĦǺǪƫä ǦŸǪȮöä ØǺǺǪÊƚ
åǺɳǞöä ȡɳ ȠŸƫǺæ ƧȥǪǂä ǢÊĦƚ .°ÿ 450 ȡɜ ǼǺÂǨ ɍ ǥøäǞǵ ǦǅŽøǼæ ǑǨǏǩş Ûȣ ǺǺƨä ɂøǪǵ ǞǺǤƚ ÛǦǵǺìǞöä ȣǺȒǨş
.ŏäȥƬǺæ ǦǺǻǅžƫä ǥåǺƫä ȡɳ ȟ 1 ǑõŽ

Determination of acid-insoluble ash ƒ ǅŽΘǁƐ Ǐ ʓ ƒƐǋǰƤǁƐ ƥĭƷ ơǇDŽƥǁƐ ǅžĩĩƴƗ

Ƙȡ åäȥƫä ƷȶǅžƚÜTS (ȯ/ȟ 70~) ǬǺøȥŸõşøǼƎTä Ȑ ƥ ȯȥŸƬ ȡɳ Ǒɳ 25 øäǼǑɳ ȨǝǺęå 5 ǥǼɳ åǺɳǞöä ɂŸȣƚ
ɂøǪǵ °ÿ 500 ǦæäǞǬ ƂǗ ǑǨǏǩş ÛȡǹǺÊöä ŏǺƫǺæ ǑÊȣƚ ÛåǺɳǞöä ǇǼɜ ǴƐìǞǨ ȧøş ɂŸɜ şǗ Û ǥǞǅžĦŀȟ ǦǬǨȥæ Ž ǦæäşǾöä
ǥåǺƫä ȡɳ (ȟ) ÿäǞȡ 1 Ǒõ Ž ȐȶΣä Ž ā äşǾöä Ƙȡ åǺɳǞöä ȡɳ (ȠŸȠ) ÿäǞȡ ɄŸƐƫǺæ ƧȥǪĦƫä ǢÊĦƚ .ƘæǺǯöä ȷàȥöä
.ŏäȥƬǺæ ǦǺǻǅžƫä

MISCELLANEOUS l ƑƳNjdžƗDž

[illegible]

INTERNATIONAL CHEMICAL REFERENCE SUBSTANCES

[illegible]

[illegible]

- [illegible] infrared spectrophotometry [illegible]
- [illegible] ultraviolet absorbtion [illegible] spectrophotometry
- [illegible]
- [illegible]
- [illegible] (automated [illegible]) [illegible]
- [illegible] gravimetric [illegible] titrimetric [illegible] non-stoichiometric [illegible]
- [illegible] optical rotation [illegible]
- [illegible] polarography [illegible]
- [illegible] fluorescence spectrophotometry [illegible]
- [illegible] microbiological assay [illegible] .(151-145 [illegible]

[illegible] WHO Expert Committee [illegible]

[illegible] (1975 [illegible] 567 [illegible]).

International [illegible] *Pharmacopoeia* [illegible].

[illegible] WHO Collaborating Centre for Chemical Reference Substances [illegible] Solna [illegible] Sweden.

[illegible]

[illegible] Apotekens Centrallaboratorium [illegible] 3045 [illegible] 171 03 [illegible] 3 [illegible] Sweden. [illegible] package [illegible]

[illegible]

[illegible]

NAMES, SYMBOLS, AND RELATIVE ATOMIC MASSES OF CERTAIN ELEMENTS

[illegible] isotope [12]C [illegible] 12 [illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
58.93	Co	Cobalt [illegible]	26.98	Al	Aluminium [illegible]
63.55	Cu	Copper [illegible]	121.75	Sb	Antimony [illegible]
19.00	F	Fluorine [illegible]	74.92	As	Arsenic ([illegible]) [illegible]
197.0	Au	Gold [illegible]	137.3	Ba	Barium [illegible]
4.003	He	Helium [illegible]	209.0	Bi	Bismuth [illegible]
164.9	Ho	Holmium [illegible]	10.81	B	Boron [illegible]
1.008	H	Hydrogen [illegible]	79.90	Br	Bromine [illegible]
126.9	I	Iodine [illegible]	112.4	Cd	Cadmium [illegible]
55.85	Fe	Iron [illegible]	40.08	Ca	Calcium [illegible]
138.9	La	Lanthanum [illegible]	12.01	C	Carbon [illegible]
207.2	Pb	Lead [illegible]	140.1	Ce	Cerium [illegible]
6.941	Li	Lithium [illegible]	35.45	Cl	Chlorine [illegible]
24.31	Mg	Magnesium [illegible]	52.00	Cr	Chromium [illegible]

[illegible] 1± [illegible] 3± [illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
107.9	Ag	Silver [illegible]	54.94	Mn	Manganese [illegible]
22.99	Na	Sodium [illegible]	200.6	Hg	Mercury [illegible]
87.62	Sr	Strontium [illegible]	95.94	Mo	Molybdenum [illegible]
32.06	S	Sulfur [illegible]	58.71	Ni	Nickel [illegible]
232.0	Th	Thorium [illegible]	14.01	N	Nitrogen [illegible]
118.7	Sn	Tin [illegible]	16.00	O	Oxygen [illegible]
47.90	Ti	Titanium [illegible]	30.97	P	Phosphorus [illegible]
183.85	W	Tungsten (Wolfram) [illegible]	195.1	Pt	Platinum [illegible]
238.0	U	Uranium [illegible]	39.10	K	Potassium [illegible]
50.94	V	Vanadium [illegible]	101.1	Ru	Ruthenium [illegible]
65.38	Zn	Zinc [illegible]	78.96	Se	Selenium [illegible]
91.22	Zr	Zirconium [illegible]	28.09	Si	Silicon [illegible]

[illegible] 3± [illegible] 1± [illegible]

[illegible] boron [illegible] sulfur [illegible] strontium [illegible] lead [illegible] calcium [illegible] .significant figure [illegible]

[illegible]

LIST OF REAGENTS, TEST SOLUTIONS, AND VOLUMETRIC SOLUTIONS

(*International Pharmacopoeia* [illegible] TS [illegible] R [illegible] 1 [illegible] .VS [illegible] PbTS، FeTS (CITS (AsTS (AsR [illegible] IR [illegible] Cm [illegible] .anhydrous [illegible] *System international d' Unites* (SI) [illegible]

Specifications for reagents mentioned [illegible] SRIP [illegible] .(1963 [illegible]) *in the International Pharmacopoeia* [illegible] d_{20}^{20} [illegible] *d* [illegible] SRIP [illegible] .°ÿ 20 [illegible] °ÿ 20

[illegible] 3.0 [illegible] **(Acetate buffer, pH 3.0, TS) TS** [illegible] **3.0** [illegible]

glacial [illegible] 6 [illegible] R [illegible] 12 [illegible] acetic acid R [illegible] 100 [illegible].

d~1048 [illegible] 25 [illegible] 1963 [illegible] SRIP) $C_2H_4O_2$ **.Acetic acid, glacial, R** [illegible]

[illegible] R [illegible] **Acetic acid, glacial, R1** [illegible] 1 [illegible] 20 [illegible] TS ([illegible] 1760~) [illegible] 10 [illegible] 10.0 [illegible] 30 [illegible] VS([illegible] 0.0167) potassium dichromate [illegible] ([illegible] 80) potassium iodide [illegible] 1.5 [illegible] 20 [illegible] 50 [illegible] VS ([illegible] 0.1) sodium thiosulfate [illegible] TS [illegible] .VS ([illegible] 0.1) [illegible] 0.6 [illegible]

300 [illegible] R [illegible] **TS** [illegible] **300~ Acetic acid** [illegible] 5) $C_2H_4O_2$ [illegible] .*d*~1.037 [illegible]

[illegible] **TS** [illegible] **300~** [illegible] **TS** [illegible] **60~ Acetic acid** [illegible] .*d*~1.008 [illegible] 1) $C_2H_4O_2$ [illegible] 60 [illegible]

TS ([illegible] 60~) [illegible] **PbTS** [illegible] **60~ Acetic acid** [illegible] TS ([illegible] 60~) [illegible] 20 [illegible] 25 [illegible] 3 [illegible].

.(26 [illegible] 1963 [illegible] SRIP) $C_4H_6O_3$ **.Acetic anhydride R** [illegible]

.(27 [illegible] 1963 [illegible] SRIP) C_3H_6O **.Acetone R** [illegible]

.C_2H_3N [illegible] Methyl cyanide [illegible] **.Acetonitrile R** [illegible]

[illegible]

.ǒǺţā Ʒŋ ǦƖǺШ ǯÂǬƹ :*miscibility ǦǛǮşÂţā*

.TS ȯ ȟ 400 Acetonitrile ŎƖǺǬǛǫζǬǛèɟā

ȡŋ ȯ/ȟ 400 ǦǝǟǺǯ ǰǨǺǺǝǟ ȯζǓǂā Ƀζʒ .ǒǺţā ȡŋ ǺȶǄǵǵ 1 Ʒŋ R ŎƖǺǬǫζǬǛèɟā ȡŋ ǺȶǄǵǵ 1 ǯÂȶɫ :*ǒǟǺǄǮqā*

.C_2H_3N

.(27 ǦƜǺÔǝǟ Û1963 ÛSRIP) **.Agar R** ǿǺɖɇā ǒǟǺɖ

.ǢǺȶɧ $Al(OH)_3$ **.Aluminium hydroxide R** ÿζǛǺǛŋζǒɟā ǼǛÊÕşǿǼǛȽ

.ǦƜǝǟǺǝǟ ƇǼʒ ÛɈζǓǝǟ ȒǛǟǓ ȧζƜÊŋ :*Ƶöζǝǟ*

.TS (ȯ/ȟ 750~) ȯζǫǺǯǺɋā ȯζǓȚ Ž ɍş ǒǺţā Ž ǺǛǓȶʒ āǟşǿ Ƙɖ :*ǦǛǫǺǟşǾǝǟ*

.d~ 0.894 Ü(31 ǦƜǺÔǝǟ Û1963 ÛSRIP) . R ÛÂȭǺǶɧ ÛǺǛǫζŋǓ **TS ȯ ȟ 260~ Ammonia** ǺǛǫζŋɟā ȯζǓȚ

ȡŋ ȯ/ȟ100 ǦǝǟǺǯ ɃζƜǛǒ ƵǺǺǺɫ ÛTS (ȯ/ȟ 260~) ǺǛǫζŋǓ ȯζǓȚ **.TS ȯ ȟ 100~ Ammonia** ǺǛǫζŋɟā ȯζǓȚ

. *d*~0.956 Ü(ǺǦƖǺǑǨ ȯ/ȯζŋ 6) NH_3

ǺǺǺǦɫ :ƃǺǬǝǟ ǿǺǦǬǹɍā ɄøǦǓɫ ɃǾǝǟ TS (ȯ/ȟ 100~) ǺǛǫζŋǓ ȯζǓȚ **.FeTS ȯ ȟ 100~ Ammonia** ǺǛǫζŋɟā ȯζǓȚ

ȯζǓȚ ȡŋ Ōŋ 2ş ÛǒǺţā ȡŋ Ōŋ 40 ȣǺȒɫ ÛɄǝǺŋ ÿǺƥ ʔǓʒ ǺǦƖǺǑǨ TS (ȯ/ȟ 100~) ǺǛǫζŋɟā ȯζǓȚ ȡŋ Ōŋ 5

Ûmercaptoacetic acid R ŌǛǬǛèǓζǬǺǑƘţā Ȓ ƥ ȡŋ ɉǺǺǺÛçş FeTS (ȯ/ȟ 180) citric acid ŎƖǺǬǛÊǝǟ Ȓ ƥ

.ɄǓǺǫǺç ɉζǒ ɃǓ ǰǬǺǺ ɍ ÜǒǺţǺǟ Ōŋ 50 ƃǓ ƵǺǺǺş ÛFeTS (ȯ/ȟ 100~) ǺǛǫζŋɟā ȯζǓƜȶȇ ǺƖζǓç ŎǶǄɫ ÛǯÂȶɫ

:ƃǺǬǝǟ ǿǺǦǬǹɍā ɄøǦǓɫ ɃǾǝǟ TS (ȯ/ȟ 100~) ǺǛǫζŋǓ ȯζǓȚ **.PbTS ȯ ȟ 100~ Ammonia** ǺǛǫζŋɟā ȯζǓȚ

ȯζǓȚ ȡŋ Ōŋ 1 ǦǒǺȶǰǝǟ ƃǓ ȣǺȒɫ ÛɄǝǺŋ ÿǺƥ ʔǓʒ ȣǺǺƨā ƃǓ TS (ȯ/ȟ 100~) ǺǛǫζŋɟā ȯζǓȚ ȡŋ Ōŋ 5 ǺǺǺǦɫ

60~) ŌǛǬǛèɟā Ȓ ƥ ȡŋ Ōŋ 2 Ž ǦǒǺȶǰǝǟ āǟǾɫ .ȣǺǺƨā ƃǓ ǺǺǺş ÛTS (ȯ/ȟ 70~) ŎƖǿζǓÕşǿǼǛȚā Ȓ ƥ

ǦŎƖǺÛǟ ǼȽǺÎǝǟ ǺȒƜɫ .ǦǓǛŎǯǝǟ (ǧāǺǓǺǝǟ) ɉǻǺǶţā ŎǄɟ ǿǺǦǬǹɍā ĘǦÛɬ Ōŋ 25 ƃǓ ǒǺţǺǟ ƵǺǺǺɫ ÛPbTS (ȯ/ȟ

.Ōŋ/ÿāǺɖşǺŌŋ 2 ɄȽ ǦǓǛŎǯǝǟ (ǧāǺǓǺǝǟ) ɉǻǺǶţā ǻşǼǵ .ǦǒǺÎɧ

،Ammonia buffer TS ǺǛǫζŋɟā ǦǝǿāǻȯζǓȚ

ǒǺţǺǟ ƵǺǺǺş TS (ȯ/ȟ 260~) ǺǛǫζŋɟā ȯζǓȚ ȡŋ Ōŋ 570 Ž R ǺǛǫζŋɟā ǼƖǿζǓÕ ȡŋ ȟ 67.5 āǟǾɫ .*ǒǟǺǄǮqā*

.Ōŋ 1000 ƃǓ

.(32 ǦƜǺÔǝǟ Û1963 ÛSRIP) $C_2H_7NO_2$ **،Ammonium acetate R** ÿζǛǫζŋɟā ǧǺǬǛèǓ

ǦǝǟǺǯ ɃşǺƩā R ǺǛǫζŋɟā ǧǺǬǛèǓ ȡŋ ȯζǓȚ ζȽ **،TS ȯ ȟ 80 Ammonium acetate** ÿζǛǫζŋɟā ǧǺǬǛèǓ ȯζǓȚ

.(ǺǦƖǺǑǨ ȯ/ȯζŋ 1) $C_2H_7NO_2$ ȡŋ ȯ/ȟ 77

.(33 1963 SRIP) $(NH_4)_2CO_3$ ،**Ammonium carbonate R**

.(33 1963 SRIP) NH_4Cl ،**Ammonium chloride R**

.(NH_4 10) ،**Ammonium chloride TS**

0.296 R 1000.

10 100.

Shelf - life 2

.10.0 **10.0** **Ammonium chloride buffer TS**

7.0 R 57 TS (260~)

100.

.(34 1963 SRIP) $(NH_4)_6Mo_7O_{24},4H_2O$ **.Ammonium molybdate R**

R .**TS** **95** **Ammonium molybdate**

$(NH_4)_6Mo_7O_{24}$ 95.

.(36 1963 SRIP) $C_2H_8N_2O_4$, H_2O ،**Ammonium oxalate R**

R .**TS** **25** **Ammonium oxalate**

$C_2H_8N_2O_4$ 27.

.(36 1963 SRIP) NH_4SCN ،**Ammonium thiocyanate R**

.**TS** **75** **Ammonium thiocyanate**

(1) NH_4SCN 75.

R **.VS** **0.1** **Ammonium thiocyanate**

1000 NH_4SCN 7.612.

0.1 *standardization*

50 VS (0.1) 30.0

TS (1000~) 2

45) 2

TS.

R **.VS** (**0.01**) **Ammonium thiocyanate**

.Ōŋ 1000 Ž NH_4SCN ȸŋ ȟ 0.7612 ɁΫȝ ɃζǪȞɎȫ ǒǺƫ

ǫζΫʈ ɉɨζǺȝ ǨƠ Ǵζζǒζƫ ǦŌǺǺÛǫǺ ǫζΫȞȶΫȫ ĘɆęǼȫ ÂɆȭǺǪȫ ȸŋ ĘŌȞǪȫ ɭǪǺ .*standardization* *ȄɆŌǪȫ ǦŌǺǺü*

.VS (ǫ/ǫζŋ 0.1) ȳζɆǫζŋɉ ğǺǫǺɆȅζɆǫ

،$C_4H_4NaO_7Sb$ ،**Antimony sodium tartarate R** ɉζȶɆǪɉȘ ȳζǺåζÔȫ ğǺǺüǺü

.ȒɆɉ ƂǗ ǡøǺȓ ȘǗ ȣǺǺȉ Ûhygroscopic ǼȖǺǪÊȵ ȧζȞÊŋ ȘǗ scales Ȥ ȉǺǵ :*Ȥ ǒζ*

.TS (ǫ/ȟ 710~) ǫζǪǺǯǺɋ Ž ɆΫȶȝ ǡȘǽ Ƙȡ ǗǒǺƫ ȸŋ ǺÂǇ 1.5 Ž ǡȘǽ :*ǦɆǪǺȘǾ*

ȳζǺåζÔȫ ğǺǺüǺü ǫζΫʈ .**TS ǫ ȟ50 Antimony sodium tartarate** ɉζȶɆǪɉȘ ȳζǺåζÔȫ ğǺǺüǺü ǫζΫʈ

.$C_4H_4NaO_7Sb$ ȸŋ ǫ/ȟ 50 ǦǺǺǺ ɁΫȝ ɃȘǺΣ R ȳζɆǫζŋɉȘ

ȸŋ ȳǺǺȡȘǺŌŋ 10 ɁΫȝ ɃζǪȜ ǺǪ ɄΫŋ ǼǵȘ Ōȭ ،**AsTS** ÛȤǺǺǺƫ Û**Arsenic** ǸɆǪøÂȫ ȭɆɆȅøɉ ǫζΫʈ

.ȭɆɆȅøɉ

.Ōŋ 100 ȝǺǪɋ ǒǺƫ ȸŋ ȣȢǺȭ øǺǼŌŋ AsTS ÂȭǺƫ (ǸɆǪøÂȫ) ȭɆɆȅøɉ ǫζΫʈ ȸŋ Ōŋ 1 ȤǺǺȽ :*ǒǺǇɋ*

.ƘȒȞǪȫ ȝǺǺü AsTS ȭɆɆȅøɉ ǫζΫʈ ɉζǪǺ ɉǗ Ǽƶ :*ǦȚǵΫŋ*

،**AsTS** ÛÂȭǺƫ Û**Arsenic** ǸɆǪøÂȫ ȭɆɆȅøɉ ǫζΫʈ

ȳζǺåζÔȫ ǼɆÊȭȘøǼȽ ǫζΫʈ ȸŋ Ōŋ 6 Ž R (ǸɆǪøÂȫ) ȭɆɆȅøɉ ǼɆÊȭǗ ɄǪΫ ȸŋ ȟ 0.132 ǡǺøȽ :*ǒǺǇɋ*

ȣǺȒȽȘ ÛǒǺƫ ȸŋ Ōŋ 20 øǺǼŌŋ ǻǺǺƫ ǫζΫɉ ȤǺǺȽ .ȤɆǺȴ ƘǺÊǪǺ ÛTS (ǫ/ȟ 80~) sodium hydroxide

.Ōŋ 100 ȝǺǪɋ ǒǺƫ ȸŋ ȣǺȭ øǺǼŌŋȘ TS (ǫ/ȟ 250~) ȭǺøζΫȭȘøǼȚ Ȓþ ǫζΫʈ ȸŋ Ōŋ 50

.(44 ǦȞǺÔȫ Û1963 ÛSRIP) As_2O_3 ،**Arsenic trioxide R** ȭɆɆȅøɉ ǼɆÊȭǗ ɄǪΫ

.(45 ǦȞǺÔȫ Û1963 ÛSRIP) $BaCl_2, 2H_2O$ ،**Barium chloride R** ȳζǺøǺǦȫ ǼǺøζΫȭ

ȸŋ ǫ/ȟ 52 ǦǺǺǺ ɃȘǺΣ R ȳζǺøǺǦȫ ǼǺøζΫȭ ȸŋ ǫζΫʈ ،**TS ǫ ȟ50 Barium chloride** ȳζǺøǺǦȫ ǼǺøζΫȭ ǫζΫʈ

.(ǫ/ǫζŋ 0.25 ǡøǺŌȽ Ǻŋ) $BaCl_2$

ɁΫȝ ɃζǪȞɎȫ ǒǺƫ Ž ǡǺØȵ ÛR ȳζǺøǺǦȫ ǼǺøζΫȭ ،**VS ǫ ǫζŋ 0.5 Barium chloride** ȳζǺøǺǦȫ ǼǺøζΫȭ ǫζΫʈ

.Ōŋ 1000 Ž $BaCl_2$ ȸŋ ȟ 104.2

ȝȓζȽ :ǦɆǪǺȫ ǦŌǺǺÛǫǺ ǫ/ǫζŋ 0.5 ǫζΫȞȶΫȫ ĘɆęǼȫ ÂɆȭǺǪȫ ȸŋ ĘŌȞǪȫ ɭǪǺ .*standardization* *ȄɆŌǪȫ ǦŌǺǺü*

ȣǺȒȽ ÛǒǺƫ ȸŋ Ōŋ 40 øǺǼŌŋ ȤǺǺȽ ÛǦΫǇζǵ Ž VS (ǫ/ǫζŋ 0.5) ȭǺøζǺΫÊȫ Ȓþ ǫζΫʈ ȸŋ Ōŋ 10.0

ǡøǺȒȫ ɉζΫȫ ɁøǪǵ ȳζǺøǺǦȫ ǼǺøζΫȭ ǫζΫȞȶÊ ǒȔǾ ǺǺȞȽȘ Û TS (ǫ/ȟ 2) thorin ȸǺøζǯȫ ǫζΫʈ ȸŋ ɉǨǺÛę

.Ǻþɉ ƂǗ

.(47 [illegible] 1963 [illegible] SRIP) $Ba(NO_3)_2$ **.Barium nitrate R** [illegible]

[illegible] 2.614 [illegible] R [illegible] **.VS** [illegible] **0.01** **Barium nitrate** [illegible]

[illegible] 1000 [illegible] $Ba(NO_3)_2$ [illegible]

[illegible] 0.01 [illegible] *.standardization* [illegible]

[illegible] 40 [illegible] VS ([illegible] 0.01) [illegible] 10.0

methylthioninium [illegible] TS ([illegible]2) thorin [illegible]

[illegible] TS ([illegible] 0.2) chloride

،BaO ،Barium oxide R [illegible]

[illegible]

[illegible]

[illegible]

،Barium sulfate suspension TS [illegible]

[illegible] 20 [illegible] 55 [illegible] VS ([illegible] 0.5) [illegible] 15 [illegible]

TS ([illegible] 174) [illegible] 5 [illegible] TS ([illegible] 750~) [illegible]

[illegible] 100 [illegible]

[illegible] TS [illegible]

[illegible] **،Beef extract R** [illegible]

[illegible]

[illegible]

[illegible] %96.0 [illegible] $C_{16}H_{17}N_2NaO_4S$ **،Benzylpenicillin sodium R** [illegible]

[illegible] $C_{16}H_{17}NaO_4S$ [illegible] %102.0 [illegible]

[illegible]

.R [illegible] 0.5 [illegible]

Benzylpenicillin sodium TS [illegible]

[illegible] R [illegible] 0.03 [illegible]

.R [illegible] 3 [illegible] 10 [illegible] TS 7.0

،H_3BO_3 [illegible] %99.0 [illegible] ،H_3BO_3 **،Boric acid R** [illegible]

.ȷζŸöä ȐĔǽǗ ɃǿζŸä ȧζĦÊŋ ʂǗ Åŋ Åʒζǵ Ǧʒǻţ ǦŃǘöǘö Ƶ ȉäǺǵ ʂǗ ȷζŸöä öǺȒĔä ğäǿζŸä . Ƶ ȍζöä
750~) ȯζǵǺǯŃqä ȯζŸƮ ȡŋ ŏÂDZ 16 Žʂ ÛƂǺ8öä ŏǺţä ȡŋ ŏäÂDZǗ 3 Žʂ ÛöǺţä ȡŋ ǻöÂDZ 20 Ž āʂǾŃ .ǦĔǵǺǣʂǾöä
.TS (ȯ/ȟ

.ȷζö Ÿäʂ ǺÖǝäǿ ȯζŸǂä ȷζȮŃ ÜöǺţä ȡŋ ǻöÂDZ 30 Ž ȟ 1.0 āäǾł .ŏǺţä Ž Ǧäǣʂǿöä Ƙɋ ǻǻζţä
ȷζȮŃ ÜTS (ȯ/ȟ 750~) ƂǺ8öä ȯζǵǺǯŃqä ȯζŸƮ ȡŋ Ōŋ 10 Ž ȟ 1.0 āäǾł .ȯζǵǺǯŃqä Ž ǦäǣʂǾöä Ƙɋ ǻǻζţä
.ǺǯõǗ ɍ ƵĦȑ ŌȮÎä ǺÂȮʒ ȯζŸǂä

ÛR ȯʂƘÊĔŸ8öä ȡŋ Ōŋ 50 8ǺȒłʂ ÜöǺţä ȡŋ Ōŋ 30 Ž ÛǦĔȕζǦȒŋ Ǧǫʂǟζŋ Ûȟ1 ǦäǟǺǣ āäǾł .*assay* ǦÊŃǺÖţä
ȡŋ ƂǺʅä ȳζŃǻζÔöä ǼĔÊõʂǿǼĔȽ ȯζŸĦŧê ǺŃǺĦłʂ ÛTS ȯζǵǺǯŃqä/ƙǺöǺǯζ ȯζǼǺöä ȯζŸƮ ʔŸʒ ǺÖǦÊŋ ȯǼĔǫÊţä
ȯζŸƮ ȡŋ Ōŋ 1 Ōõ .ǺĦÎŧõ TS ȯζǵǺǯŃqä/ƙǺöǺǯζ ȯζǼǺöä ȯζŸƮ ȯǺŧĦǫèǺä ÛVS (ȯ/ȯζŋ 1) ğǺǫζäǺȮöä
.H_3BO_3 ȡŋ ŊŸŋ 61.83 ȕζǺȮł VS (ȯ/ȯζŋ 1) ğǺǫζäǺȮöä ȡŋ ƂǺʅä ȳζŃǻζÔöä ǼĔÊõʂǿǼĔȽ

.H_3BO_3 ȡŋ ȯ/ȟ 50 ǦäǟǺǣ ʔŸʒ ɃʂǺΣä R ǿζǦöä ȐŧΣ ȯζŸƮ .**TS** ȯ ȟ **50 Boric acid** ǿζǦöä Ȑþ ȯζŸƮ
.(51 ǦĦǺÔöä Û1963 ÛSRIP) Br_2 ،**Bromine R** ȳʂƎöä

،R ȳʂƎöä ȡŋ ʒǦÎɧ ȯζŸƮ ،**Bromine TS1** ȳʂƎöä ȯζŸƮ

،**Bromine AsTS** ȳʂƎöä ȯζŸƮ

ǿäǼŌŋ ƵǺǺłʂ R ȳʂƎöä ȡŋ ȟ 30 8ǺȒłʂ ÛöǺţä ȡŋ Ōŋ 40 Ž R ȳζĔèǺƙζǦöä ǼĔŋʂǺä ȡŋ ȟ 30 āäǾŃ .ŏäÂDZqä
ȳǺþ ʔŸʒ ǺǦŃǺÖǩ 8ǺǺƨä ʔøǬǵ Ōŋ 10 ǺǺł :ƂǺǬöä ǿǺǦǬȵɍä ɄøǦŸł ȯζŸǂä .Ōŋ 100 ǯǺǫq ŏǺţä ȡŋ 8Ǻõ
ȡŋ ǻ8Ǻõ ǿäǼŌŋʂ ÛAsTS (ȯ/ȟ 250~) ŌŃǿζŸõʂǿǼĔƮä Ȑþ ȯζŸƮ ȡŋ Ōŋ 10 ÛöǺţä ȡŋ Ōŋ 50 8ǺȒł ÛɄǝǺŋ
ŌDZɉ ȳǺĦöä ǿǺǦǬȵɍä ĘǦÛłʂ ÛɄŌǦǬţä ȳʂƎöä ȯäǺǬȵɍ stannous chloride AsTS ɃǺŃǼÔŌöä ǼŃǿζŸõ ȯζŸƮ
ÛɃǿǺĔĦǂä ȡŋ Ōŋ –1 ǦǺÛǯ ȡʒ ǰǺǺöä Ōöǽ ȡŋ ǵǼȉ ǺǯõǗ ǦƟǺǺöä ǦǺÛǺöä ȷζö ȷζȮŃ ɍ .(ȐĔǿǺÂöä) ŌĔǼèǿɉä
.Ōŋ/ȳäǺɖʂǺȮŋ 1 ȡʒ ǼŃǺǩ ɍ ŌĔǼèǿɉä ǦĔŧõ ȷǗ ʔŸʒ ŌöǾä ǵǺƮƮɧ

.(52 ǦĦǺÔöä Û1963 ÛSRIP) $C_{19}H_{10}Br_4O_5S$ ،**Bromophenol blue R** ȯζǼζζŋʂƎöä Ǧęǿǻ

،**Bromophenol blue/ethanol TS** ȯζǵǺǯŃqä ȯζǼζζŋʂƎöä Ǧęǿǻ ȯζŸƮ
(ȯ/ȯζŋ 0.05) ȳζŃǻζÔöä ǼĔÊõʂǿǼĔȽ ȯζŸƮ ȡŋ Ōŋ 3.2 ʒŋ R ȯζŧĔǫζζŋʂƎöä Ǧęǿǻ ȡŋ ȟ 0.1 ȡǺǺĔł .ŏäÂDZqä
ȯζŸƮ ȡŋ ǦĔζǺõ ǦĔŧõ 8ǺȒǩ Ûȯζ Ÿǂä äǺƱǗ ɭǬŃ ȷǗ ǼĦä ÜTS (ȯ/ȟ 710~) ȯζǵǺǯŃqä ȯζŸƮ ȡŋ Ōŋ 5ʂ VS
.Ōŋ 250 ǯǺǫq (ȯ/ȟ 150~) ȯζǵǺǯŃqä

،**Brown stock standard TS** ɄøǺǦöä ȡŃÂʅä ɃǿǺĔĦǂä ȯζŸǂä
Ōŋ 0.8 ÛTS âǺĦǺöä ȷζö ȯζŸƮ ȡŋ Ōŋ 17.0 ǿäǼŌŋ TS ƘǺǺζȮöä ȷζö ȯζŸƮ ȡŋ Ōŋ 35.0 ƂǗ 8ǺȒł .ŏäÂDZqä

.ǯÂɕȘ ÛTS ǼǼΣã ȷ ȥô ȯȥŸĦƚȇ Ǭɳ 100.0 ƂǗ ȤǺȽ ÛTS ǧ ǺȘ ÀÖä ȾÀ ȷ ȥô ȯȥŸȚ ȡɳ

.(56 ǦĦÂÔöä Û1963 ÛSRIP) $CaCO_3$ **.Calcium carbonate R1** ÿȥÊöÖä ǧ ȥÀõ

ȻøĦƚõ ÿǼÁ ǦȅÀɳ ǥȥƛ R1 ÿȥÊöÕ ǧ ȥÀõ .$CaCO_3$ **.Calcium carbonate R**2 ÿȥÊöÖä ǧ ȥÀõ

.disodium edetate ÿȥȥÔöä ǦȾÀ ǧ ǼɊä ȄǬ ǬȷƂȘ

Û1963ÛSRIP) $CaCl_2$. R ÿȥÊöÖä Ǽøȥõ **Calcium chloride, anhydrous,R** ȾɳŸä ÛÿȥÊöÖä Ǽøȥõ

.(58 ǦĦÂÔöä

Û1963 ÛSRIP) $CaCl_2$, $6H_2O$ **،Calcium chloride, hydrated, R** Û Ⱦø ǼŢã ȼƚȶã ÛÿȥÊöÖä Ǽøȥõ

(58 ǦĦÂÔöä

ɁŸȝ ȻȘΣã R ȼƚȶã ÿȥÊöÖä Ǽøȥõ ȡɳ ȯȥŸȚ **.TS** ȯ ȟ **55 Calcium chloride** ÿȥÊöÖä Ǽøȥõ ȯȥŸȚ

.(ȯ/ȯȥɳ 0.5 ā øÖȽ ɳ) $CaCl_2$ ȡɳ ȯ/ȟ 55 ǦÀ

2-hydroxy-1-[(2-hydroxy-1-naphthyl)-azo] ȐƚΣ ÿȥȥÔöä ȻǵǗ ǴŸɳ **.Calcon R** ȷȥÖöÖä

Ǧȩǿ ȥȅǗ Û15705 ɭȩǿ C.I. ÛMordant Black 17 Ǩȥɳ ȥȅǗ C.I Ünaphthalene-4-sulfonic acid

ÜSolochrom Dark Blue ÿȘõȥȥÊöä ǦÕǼä ǦȩÂöä ÛEriochrome Blue Black R ÿȘõȥɍä

.$C_{20}H_{13}N_2NaO_5S$

2-Hydroxyl-1- (2-hydroxy-4-sulfo-1- **،Calcon carboxylic acid R** ȾÊõȥÀÖä ȷȥÖöÖä Ȑƥ

.$C_{21}H_{14}N_2O_7S$, $3H_2O$ Ünaphthyl-azo) -3-naphtoic acid

.ǦǄÊÀ ǦĦÊɳ ǷȝȾø ȷȥŸ ȧȥĦÊɳ *.Ȥöȥä*

ȷȘǾöä Ǥ ÜTS (ȯ/ȟ 750~) ȯȥǯɊä ŽȘ R ȯȥȶä Ž ȷȘǾöä ǴĦȉ ÜöȶäŽ ƚȝ ā ȩ Ƙɖ *.ǦȘǾöä*

.alkali hydroxides ǧȥŸöä ǧ ÊõȘøǼȽ ǬȚ Ž

Calcon carboxylic acid indicator mixture R ȾÊõȥÀÖä ȷȥÖöÖä Ȑƥ ÀȞÎɳ ǰɳ

.R ǦȾɳŸä ÿȥȥÔöä ǧ Àȅ ȡɳ ȟ 10 ȝɳ R ȾÊõȥÀÖä ȷȥÖöÖä Ȑƥ ȡɳ ȟ 0.1 ǯÂȽ *.öÀǅɊ*

.**R** ȷȥÖöÖä ÀȞÎɳ ǰɳ

.R ǦȾɳŸä ÿȥȥÔöä ǧ Àȅ ȡɳ ȟ 10 ȝɳ R ȷȥÖöÖä ȡɳ ȟ 0.1 ǯÂȽ *.öÀǅɊ*

،CO_2 ،Carbon dioxide R ȷȥÀÖä ǼÊõǗ ȾÀ

.ǦĦÀöä ǻȝ Üȷȥô Ÿ ȧȡ *.Ȥöȥä*

.öȶä ȡɳ ƚǄǵ ÀǄ 1.3 ǦÀ Ž ā ȩ *.ǦȘǾöä*

.(62 [illegible] 1963 [illegible] SRIP) CS_2 ،**Carbon disulfide R** [illegible]

[illegible] R [illegible] .**Carbon disulfide IR** [illegible]

[illegible] 4 [illegible] 1.0 [illegible]

cm^{-1} 670- 4000 [illegible] (45 [illegible]) "[illegible]"

[illegible] cm^{-1} 935-1265 [illegible] cm^{-1} 1755-2000 [illegible] cm^{-1} 2440 - 2635 [illegible] cm^{-1} 3030- 4000 [illegible] 0.1 [illegible]

.cm^{-1} 715 - 800 [illegible] 0.17 [illegible]

.(63 [illegible] 1963 [illegible] SRIP) CCl_4 ،**Carbon tetrachloride R** [illegible]

،$Ce(NO_3)_4$, $2NH_4NO_3$ ،**Ceric ammonium nitrate R** [illegible]

[illegible]

[illegible]

[illegible] TS [illegible] 1760~) [illegible] 10 [illegible] 5 [illegible]

[illegible] 90 [illegible]

[illegible] 105 [illegible] 1 [illegible]

[illegible] 2.5 [illegible]

[illegible] 10 [illegible] 24 [illegible] 85 [illegible] 2.5 [illegible]

[illegible] 40 [illegible] TS [illegible] 190~) [illegible]

[illegible] 1 [illegible] .VS ([illegible] 0.1) ferrous sulfate [illegible] *o*-phananthroline TS

.$Ce(NO_3)_4$, $2NH_4NO_3$ [illegible] 54.8 [illegible] VS ([illegible] 0.1) [illegible]

،**Ceric ammonium nitrate TS** [illegible]

.TS ([illegible] 15) [illegible] 10 [illegible] R [illegible] 6.25 [illegible]

[illegible] 3 [illegible]

.(63 [illegible] 1963 [illegible] SRIP) $Ce(SO_4)_2$, $4H_2O$ [illegible] .**Ceric sulfate R** [illegible]

[illegible] 33 [illegible] R [illegible] .**TS** [illegible] **35** **Ceric sulfate** [illegible]

.$Ce(SO_4)_2$ [illegible]

.(64 [illegible] 1963 [illegible] SRIP) .**Charcoal R** [illegible]

.$C_8H_{11}C_3O_6$ ،**Chloralose R** [illegible]

.ȷζŸöä ĈǼǯ Ƀǿζŷǟ ȧζȞÊɳ . *Ȥ ö̈ζöä*

.°ȳ 187 ǦäåÀǲ *.ǿȦŦÔƥɍǟ ǥǿåÄǵ ǦǱȤǿǻ*

ÜTS (ȯ/ȟ 750~) ȯζƥǯǟɋǟ Ž Ōɳ/ȠŸɳ 50 ȯζŸƮ ŌȶȞƍÊȽ .*specific optical rotation Ʉǯζǻöä ɃÄÔǦöä ÄǿşǼƍöä*

. $[\alpha]_D^{20^\circ C} = +19^\circ$

.(65 ǦȞȦÔöä Û1963 ÛSRIP) Cl_2 ،**Chlorine R** ǿζŸȮöä

ŏȦƫǟ Ž R ǿζŸȮöä ȡɳ ȝǦÎȼ ȯζŸƮ ،**Chlorine TS** ǿζŸȮöä ȯζŸƮ

.ƘȒȞƍöä ǯäȦù TS ǿζŸȮöä ȯζŸƮ ȷζȮǟ ȷǕ Ǣȥ *:ǦƮǵŸɳ*

.(66 ǦȞȦÔöä Û1963 ÛSRIP) $CHCl_3$ ،**Chloroform R** ȳǿζζşǿζŸȮöä

.(69 ǦȞȦÔöä Û1963 ÛSRIP) $C_6H_8O_7, H_2O$ **.Citric acid R** ȬǟƘƍǼÊöä Ȑƥ

R ȬǟƘƍǼÊöä Ȑƥ ȡɳ ȟ 0.5 ǡǻǾȽ :ƃȦƍöä ǿǟǦƍǹɍǟ Ʉǿǵǟ R ȬǟƘƍǼè Ȑƥ ،**Citric acid FeR** ȬǟƘƍǼÊöä Ȑƥ

ȦǟζŸę ŌȞǅȽ ÛǯÂȶȽ Û*mercaptoacetic acid* R ȬǼƍǼèǕζƍǟȪŏȦǭǟ Ȑƥ ȡɳ ǥȦÛę 2 ȣȦȒȽ ÛŏȦƫǟ ȡɳ Ōɳ 40 Ž

.ǼŸȦƥȦę ȦƥζǕ ǰƍȦȦ ɍ ÜŏȦƫǟ Ōɳ 50 ƃǕ ȤȦǺȦȽş FeTS (ȯ/ȟ 100~) Ǽƥζɳȷǟ ȯζŸȞɳ

ȡɳ ȯ/ȟ 183 ǦäåÀǲ ȝŸǯ ɃşȦΣǟ FeR ȬǟƘƍǼÊöä ȐȶΣ ȯζŸƮ ،**Citric acid FeTS** ȬǟƘƍǼÊöä Ȑƥ ȯζŸƮ

. $C_6H_8O_7$

.**Cobalt colour, strong, TS** ÛÂȭÀƫǟ ÛǨöȦǟζȮöä ȷζǽ ȯζŸƮ

10~) ȬǟǿζȦŸÊöä Ȑƥ ȡɳ Ōɳ 120 Ž *cobaltous chloride* R ǟ̈ζƍȦǟζȮöä ǼǟǿζŸȭ ȡɳ ȟ 8.0 ǡǻǾȽ *.ǿäǅǱɋǟ*

. $CoCl_2,6H_2O$ ȡɳ ǼȭȭǟƍöäȡǼȞǟş ÛǼǟǿşǟȑ ȬǿǞ ȷǟȭ ǟǻǕ ÛȯζŸǂǟ ǴǢǟȽ ÛTS (ȯ/ȟ

ǦŸǱζǵ ƃǕ ȯζŸǂǟ ǟǾȽ ȡɳ Ōɳ 10 ȬǟȽ .Ōɳ 100 ǯǟƍɋ ŏȦƫǟ ȡɳ ȣǟȭ ǿǟǼȬɳ Ōɳ 5.0 ȤǟǺȦȽ .*assay ǦÊǟȬƫǟ*

60~) *hydrogen peroxide* ƙǱşǿǼƮǟ ǼǼÊȭşƘǟ ȯζŸƮ ȡɳ Ōɳ 0.5 ÛŏȦƫǟ ȡɳ Ōɳ 10 ȣȦȒȽ ÛǥǻşǼÊɳ ǦǼǱȦǱǟ

boiling chips ȷǼŸȡ ǴǝǟȦ ȝȒǟ ȣȦȒȽ .TS (ȯ/ȟ 80) ȳζǟǻζÔöä ǼǼÊȭşǿǼǼ ȯζŸƮ ȡɳ Ōɳ 10ş TS (ȯ/ȟ

hydrogen peroxide ƙǱşǿǼƮǟ ǼǼÊȭşƘǟ ȡɳ ǥǻǟǟöä ȬȮǟƍǩ ȝǿƍǵ ǦŸǱζΣǟ ȜζƍƮ ȝŸȣȽş ÛǦŸǱζΣǟ ƃǕ

25ş ÛR ȳζǼèǟǩζǦöä Ǽǟǻζǟȡɳ ȟ 1 ÛŏȦƫǟ ȡɳ Ōɳ 20 ȣȦȒȽ ÛǦŸǱζΣǟ ǻǼȽ .(Ȩǝȩǻ 10 ǡǿǟȬȽ Ȧɳ) ŌɳȦȭ ȬȮÎǟ

ǡşǾǩ ȝǿƍǵ ǼȭǟƍǾ ȭǟƍǩş ǥǻǟǼÊǟ ǦŸǱζΣǟ ȨŸȣȽ .VS (ȯ/ȯζɳ 2) ȬǟǿζŸȭşǿǼƮǟ Ȑƥ ȯζŸƮ ȡɳ Ōɳ

TS ȦÎǟöä ȯζŸƮ ȯȦȶȞƍèȦǟ VS (ȯ/ȯζɳ 0.01) ȳζǟǻζÔöä ǧȦǟŸèζǼƍ ȯζŸȞȶǞ ǿǟȞƍƫǟ ǻζǼöä ȦȦȞȽ .ǦǟèȦöä

.$CoCl_2, 6H_2O$ ȡɳ ȠŸɳ 2.380 ȕζȮȽ VS (ȯ/ȯζɳ 0.01) ȳζǟǻζÔöä ǧȦǟŸèζǼƍ ȯζŸƮ ȡɳ Ōɳ 1 ȭȭ .ȦȞÎȶȭ

.$CoCl_2, 6H_2O$ ȡɳ ȯ/ȟ 60.0 ȝŸǯ Ƀζƍȝ ȯζŸƮ **.Cobalt colour TS** ǨöȦǟζȮöä ȷζǽ ȯζŸƮ

[illegible] 100 [illegible] $CoCl_2, 6H_2O$ [illegible] 6.000 [illegible]
.[illegible] TS ([illegible] 10~) [illegible] TS

.(70 [illegible] 1963 SRIP) $CoCl_2, 6H_2O$ ،**Cobaltous chloride R** [illegible]

.(72 [illegible] 1963 SRIP) **Congo red paper R** [illegible]

،**Copper colour, strong, TS** [illegible]

TS ([illegible] 10~) [illegible] 120 [illegible] R (II) [illegible] 8.0 [illegible]
.$CuSO_4, 5H_2O$ [illegible]

[illegible] 10 [illegible] 100 [illegible] 5.0 [illegible]
.R [illegible] 5 [illegible] R [illegible] 1 [illegible] 20 [illegible]
TS [illegible] VS ([illegible] 0.01) [illegible] 10 [illegible]
.$CuSO_4, 5H_2O$ [illegible] 2.497 [illegible] VS ([illegible] 0.01) [illegible] 1 [illegible]

.$CuSO_4, 5H_2O$ [illegible] 60.0 [illegible] ،**Copper colour, TS** [illegible]

TS [illegible] 100 [illegible] $CuSO_4,5H_2O$ [illegible] 6.000 [illegible]
.[illegible] TS ([illegible] 10~) [illegible]

.(73 [illegible] 1963 SRIP) .$CuSO_4, 5H_2O$ ،**Copper (II) sulfate R** [illegible]

160 [illegible] R (II) [illegible] .**TS** [illegible] **160 Copper (II) sulfate** [illegible]
.$CuSO_4$ [illegible]

.(73 [illegible] 1963 SRIP) .$C_{25}H_{30}ClN_3$.**Crystal violet R** [illegible]

[illegible] R [illegible] .**Crystal violet/acetic acid TS** [illegible]
.[illegible] 5 [illegible] R1 [illegible]

،**Culture medium Cm1** [illegible]

pancreatic digest of [illegible] 4.0 [illegible] R [illegible] 6.0 [illegible]
[illegible] 1.0 [illegible] R [illegible] 1.5 [illegible] R [illegible] yeast [illegible] 3.0 [illegible] casein R
.[illegible] 1000 [illegible] agar R [illegible] 20-10 [illegible] R [illegible]
[illegible] R [illegible]
.[illegible] tearing [illegible]

.Culture medium Cm2 ǨǼǼǪÊţǟ

ǴņǻȒŁ ȸņ ȟ 3.0ş Ûpancreatic digest of casein R ȸǺǟǻȮŸǿ ǴĿèǻǺÀȮǺǴǿǟ ǴņǻȒŢǟ ȸņ ȟ 17.0 ǟǟǾŀ *.ǿǟǺDZqǟ*
ȸņ ȟ 2.5ş ÛR ȳʐǺǻʐÔǿǟ ǼǺǾʐŸõ ȸņ ȟ 0.5 ÛR soybean meal ǺʐÔǿǟ ȯʐʐ ǴDZʐǿ papaic digest ƙǺǻǼǴǿǟ
ÛR ǟʐõʐŸ8ǿǟ ǧǟǿǼĿŁ ȸņ ȟ2.5ş Ûdipotassium hydrogen phosphate R ȳʐĿèǺǩʐǴǿǟ ǴĿǝǺǺ ƙDZşǿǼĿŢǟ ǧǺǺÊȥ
ȸņ ȟ 10.0 8ǻȒŀş Ûȯʐŷǂǟ ȸǺÊŀ .ǿǻţǟ ȸņ Ȫņ 500 ǴǟǻǺ Ž agar R ǿǻɖɇǟ ǿǟǺȡ ȸņ ȟ 20 - 10ş
.Ȫņ 1000 ǯǺǪq ǿǻţǟ ȸņ 8ǻõ ǿǟǼȪņ ǿʐʐ ƵǻǺŀş polysorbate 80 R ǧǺǿʐÊǿʐǴǿǟ

ǧǺǟʐÛèɍǟ ʖǯǼǿ ǴĿʐǻõ ǴǟŸÔǟ ʝʐȮǺ ʝǟ ǨǴǺǪÊȶŸǿ ȪȶȞǪÊţǟ R ǿǻɖɇǟ ǿǟǺȡ ǿǟǼȪņ ǴȶÊǺ ʝǜ Ǽƶ *:ǴŢǵŸņ*
.ȳŸŢǟ ǴȪǴÛǿ tearing ţǺņǻ ǫşǼǵ ʝşǻ ǟʐȪǫ ʒÛȪǟ ǴȶÊǿ şǜ

.Culture medium Cm3 ǨǼǼǪÊţǟ

ȸņ ȟ2.4ş ÛR ǿǻţǟ Ž Ǵǟşǿǿǟ yeast ǥƙȶʅǟ ǴȯŸǹ ȸņ ȟ 4.7ş ÛR ƵǻDZţǟ ʝʐǪǴǿǟ ȸņ ȟ 9.4 ǟǟǾŀ *.ǿǟǺDZqǟ*
ȸņ ȟ 25-15ş ÛR ǟʐõʐŸ8ǿǟ ǧǟǿǼĿŁ ȸņ ȟ 10.0ş ÛR ȳʐǺǻʐÔǿǟ ǼǺǾʐŸõ ȸņ ȟ 10.0ş ÛR ǺȪǴǿǟ ʖΣ ǴȯŸǹ
.Ȫņ 1000 ǯǺǪq ǿǻţǟ ȸņ 8ǻõ ǿǟǼȪņ Ž agar R ǿǻɖɇǟ ǿǟǺȡ

şǜ ǧǺǟʐÛèɍǟ ʖǯǼǿ ǴĿʐǻõ ǴǟŸÔǟ ʝʐȮǺ ʝǟ ǨǴǺǪÊȶŸǿ ȪȶȞǪÊţǟ R ǿǻɖɇǟ ǿǟǺȡ ǿǟǼȪņ ǴȶÊǺ ʝǜ Ǽƶ *:ǴŢǵŸņ*
.ȳŸŢǟ ǴȪǴÛǿ ţǺņǻ ǫşǼǵ ʝşǻ ǟʐȪǫ ʒÛȪǟ ǴȶÊǿ

(thioglycolate ǧɍʐȮŸȡʐǪ) mercaptoacetate ǧǺǪĿèǜ ʐǪǻõǺǹ ǨǴǺǪÊȴ **.Culture medium Cm4 ǨǼǼǪÊţǟ**
.ȪǝǻÊǿǟ

ȸņ ȟ 2.5ş Û L-cystine R ǺÊĿţǟ ƙǪÊĿÊǿǟ 0.5 :ƂǺǪǿǟ ǼĿǨǺǪǿǻ mortar ʝşǻŢǟ Ž Ȫņǻǹ ȪȮÎǟ ĘĦÊŀ *.ǿǟǺDZqǟ*
ǴȯŸǹ ȸņ ȟ 5.0ş ÛR ǿǻɖɇǟ ǿǟǺȡ ȸņ ȟ 0.75ş ÛR ǟʐõʐŸ8ǿǟ ǧǟǿǼĿŁ ȸņ ȟ 5.5ş ÛR ȳʐǺǻʐÔǿǟ ǼǺǾʐŸõ
.pancreatic digest of casein R ȸǺǟǻȮŸǿ ǴĿèǻǺÀȮǺǴǿǟ ǴņǻȒŢǟ ȸņ ȟ 15.0ş R ǿǻţǟ Ž Ǵǟşǿǿǟ yeast ǥƙȶʅǟ
.Ȫņ 1000 ǯǺǪq ǿǻţǟ ȸņ ǿ8ǻõ ǿǟǼȪņ 8ǻȒŀş ÛǴĿèǻǺņ ǴǺşǻǵ ƂǜȪȪǺŀ ÛȸǹǺÊǿǟ ǿǻţǟ ȸņ Ƙ8ȯ ʖDZǵ 8ǻȒŀ
8ǻȒŀ .R ǺÊĿţǟ ƙǪÊĿÊŸǿ ȳǺǪǿǟ ȯŸǕɍǟ ȸņ ǼõǺǪǿǻ ȳǺȶǪŁɍǟ ȝņ ÛƂǻȡ ǝǟǻņ ȳǺþ Ž ƙǺÊǺǿǻ ȯʐŷǂǟ ȪȶȮǺ
ǺǴõǺņ ȼʐȮǿ ƘǹɉǟȪȒǺŀ) R ȳʐǺǻʐÔǿǟ ǧǺǪĿèǜ ʐǪǻõǺǹ ȸņ ȟ 0.5 şǜ R ȪĿǪĿèǜ ʐǪǻõǺǹ Ȑ þ ȸņ Ȫņ 0.3
ǨǴǺǪÊţǟş ǝǟǻƵǺǿǟ ǿǻŁǺǴǿǟ ʝǜ ǪĿǚ VS (ȯ/ȯʐņ 1) ȳʐǺǻʐÔǿǟ ǼĿÊõşǿǼĿŁ ȯʐŸŢ ȸņ ǿ8ǻõ ǿǟǼȪņş (ǴĿǨǺǴǪ ǺǯõǜǺ
8ʐȯ ǴȞÛȩ Ǝǯ ÛǺǺǿşǺȓ Ȫǿǟ ʝǻõ ǟǟǜ ÛǴǹǺŀ ÛʔŸ8ŀ ɍ ȼǺȮǿş Ûȯʐŷǂǟ ƙǺÊǨ ǻǺȞŀ .7.2 - 7.0 ʝʐȮĿè ʖǿȞţǟ
Ž ȯʐŷǂǟ ţǟǯŀ .TS (ȯ/ȟ 1) resazurin sodium ȳʐǺǻʐÔǿǟ ȸǺǿşǟǺÊǺǿ ȯʐŸŢ ȸņ Ȫņ 1.0 8ǻȒŀş ǴĿǺÛȩ
.°ȳ 25 Ƃǜ ǿɍǻǵ ǻƎŀş °ȳ 121 ǴDZǿǻ Ž ǴȪĿȩǻ 20-18 ǥǼņ autoclaving ǥǼȯʐţǻǼ ʖȞȞŀş ǴǴèǺǺņ ǴĿǯşǜ
.ȯʐȒŸǿ ǼǟǺÂǿǟ ȐǺǺȞǪǿǟ ǼĿΘ ǯņ Û°ȳ 30-20 ǴDZǿǼĿǿǼ *.ȸǺǺǺǪǿǟ*

[illegible]

[illegible] **Culture medium Cm5**[illegible] Soybean-casein digest medium [illegible] pancreatic digest of casein R [illegible] 17.0 [illegible] 3.0 [illegible] papaic digest [illegible] soyabean meal R [illegible] 0.5 [illegible] 2.5 [illegible] R 2.5 [illegible] 1000 [illegible] (1 [illegible]) VS [illegible] 7.1 - 7.5 [illegible] 18- 20 [illegible] 121 °[illegible].

[illegible] **Culture medium Cm6** [illegible] mercaptoacetate [illegible] (thioglycolate [illegible]) [illegible] penicillinase.

[illegible] Cm4 [illegible] TS [illegible] penicillin [illegible] TS [illegible] Cm4 [illegible] cm6 [illegible] 30-32 °[illegible] 24 - 48 [illegible].

[illegible] **Culture medium Cm7** [illegible] soybean-casein digest [illegible] penicillinase.

[illegible] Cm5 [illegible] 5.0 [illegible] polysorbate R 80 [illegible] TS [illegible] Cm5 [illegible] TS [illegible].

[illegible] **Cyclohexane R** [illegible] C_6H_{12} (SRIP [illegible] 1963 [illegible] 74).

[illegible] **L-Cystine R** [illegible] $C_6H_{12}N_2O_4S_2$ (SRIP [illegible] 1963 [illegible] 75).

[illegible] **Dibromomethane R** [illegible] Methylene bromide [illegible] CH_2Br_2[illegible]

[illegible]

miscibility [illegible] (~750 [illegible]) TS [illegible] R [illegible] R.

[illegible] **Dichloromethane R** [illegible] Methylene chloride [illegible] CH_2Cl_2.

[illegible]

[illegible] *miscibility* [illegible] (750~ [illegible]) TS [illegible] R.

[illegible] 39 [illegible] 41 °[illegible].

[illegible] *residue on evaporation* [illegible] 105 °[illegible]

[illegible] 0.5 [illegible].

Dichromate colour, strong, TS [illegible]

[illegible] 6.0 [illegible] R [illegible] 120 [illegible] (10~ [illegible])

[illegible] TS [illegible] $K_2Cr_2O_7$.

assay [illegible] 5.0 [illegible] 50 [illegible] 10 [illegible] TS

[illegible] 10 [illegible] 2 [illegible] R [illegible] 20 [illegible]

[illegible] 1 [illegible] TS (100~ [illegible]) [illegible]

[illegible] 5 [illegible] R [illegible]

[illegible] 1 [illegible] TS [illegible] VS (0.1 [illegible]) [illegible]

$K_2Cr_2O_7$ [illegible] 4.904 [illegible] VS (0.1 [illegible]).

Dichromate colour TS [illegible] 4.904 [illegible] $K_2Cr_2O_7$.

[illegible] 490.35 [illegible] $K_2Cr_2O_7$ [illegible] 100 [illegible]

[illegible] TS (10~ [illegible]) [illegible]

Diethylene glycol R [illegible] $C_4H_{10}O_3$.

[illegible]

miscibility [illegible] (750~ [illegible]) TS [illegible] R [illegible] R.

[illegible] 240 [illegible] 250 °[illegible].

[illegible] *Mass density* (Q_{20}). 1.117-1.120 [illegible].

[illegible] 60 [illegible] 250 [illegible] TS [illegible]

15 [illegible] VS (0.02 [illegible]) [illegible]

[illegible] 2.5 [illegible].

[illegible] R **Dimethylformamide**، C_3H_7NO.

[illegible] 8 [illegible].

miscibility [illegible] ~750) [illegible] TS.

[illegible] 25% [illegible] 152 [illegible] 156 °[illegible].

[illegible] *Mass density* (Q_{20}). 0.945-0.947 [illegible].

[illegible] 1 [illegible] 10 [illegible] 2 [illegible] TS [illegible] 0.2 [illegible] (0.01 [illegible]) VS [illegible] 0.3 [illegible] (0.01 [illegible]) VS 5 [illegible] TS [illegible].

R 1,4-Di[2-(methyl-5-phenyloxazole)]benzene، Dimethyl-POPOP $C_{26}H_{20}N_2O_2$. [illegible] scintillation counting.

[illegible] **R Dioxan**، **1,4-Dioxane** [illegible] $C_4H_8O_2$.

[illegible].

[illegible] 8 [illegible].

miscibility [illegible] ~750) [illegible] TS [illegible] R.

[illegible] 95% [illegible] 101 [illegible] 105 °[illegible].

[illegible] 10 °[illegible].

[illegible] *residue on evaporation* [illegible] 105°[illegible] 0.1 [illegible].

[illegible] *mass density* (Q_{20}) [illegible] 1.031 [illegible].

[illegible] *water* [illegible] 5.0 [illegible].

[illegible] *peroxide* [illegible] 5 [illegible] 5 [illegible] 1 [illegible] 10 [illegible] 5 [illegible] (70~ [illegible]) TS [illegible] 2 [illegible] TS [illegible].

[illegible] **R Diphenylbenzidine**، $C_{24}H_{20}N_2$

[illegible].

[illegible] ~750) [illegible] TS [illegible] R.

.°ÿ 250-246 *.ǿǻŢÔǫɍǉ ǿǻƒ*

.ȟ/ŋŸŋ 1.0 ȸȝ ǼǺÂǺ ɍ *.sulfated ash ǨǻǿŸÊŧǉ ǻǻŋǺǉ*

(ǿ/ȟ 1750~) ƙǅȘǻǪǉ ȸŋ ƃǻʅǉ ŌǺǿȤǺŸÊǉ Ȓƥ ǿȤŸȚ ȸŋ ǻǿǻǽ ǰǺÂŋ Ž ŊŸŋ 8 ǡǻǾƚ *.nitrates ǧǻǻǪǉ*

.ǻǼǅ Æǵǻ Îǉ ȧǿǡɉǉ ȸŋ Ǻǯõǉ ȷȤŸǽ ȷȤÒǺ ɍ ȿǉ ȼǉ ȷȤǉ ɍ ǿȤŸɨǉ Ǜǿǻȶǉȸŋ Ōŋ 5ȿ TS

.(81 ǦǶǻÔǉ Û1963 ÛSRIP) $C_{13}H_{12}N_4O$ **،Diphenylcarbazone R** ȷȿàǻǽǿǻõ ŌǼǺȤ ɄǝǻǺǪ

R ȷȿàǻǽǿǻõ ŌǼǺȤ ɄǝǻǺǪ ȸŋ ǿȤŸȚ **.Diphenylcarbazone/ethanol TS** ǿȤǫǻǯǺǬǉ ȷȿàǻǽǿǻõ ŌǼǺȤ ɄǝǻǺǪ ǿȤŸȚ

.$C_{13}H_{12}N_4O$ ȸŋ ǿ/ȟ 1 ǦǡǻǺǪ ɃȤȝ TS (ǿ/ȟ 750~) ǿȤǫǻǯǺǬǉ ǿȤŸȚ Ž ǡǻǾɧ

.$C_{12}H_{10}O$ ÛŌǼǺǼǺǉ Ƙǫǉ **.Diphenyl ether R** Ƙǫɉǉ ŌǼǺȤ ɄǝǻǺǪ

.ȷȤŸǉ ȻǼȝ ŌǝǻȅǉȐ *.Ȥ ȍȤǉ*

ǧǻǼǺǾŧǉ ȽȚȞɧ ȝŋȿ R ɄǅȤŸǯǉ ŌǼǪȅɉǉ Ȓƥ ȝŋ ǦǺǺɯ ǯȿÂŋ ÛǿǻŧǉȝŋǯȿÂɧ Ƙȡ *.miscibility ǦǼǅȘǻŧǉ*

.ǦǺȤȒȞǉ

.°ÿ 259 ǦǡǻǺǪ *.ȷǼŸȣǉ Ǧǅǽǿǻƛ*

.°ÿ 28-26 *.ǿǻŢÔǫɍǉ ǿǻƒ*

ɄǿǫǻȒŋȤǉ ǻǻǼȞǪǉ ŌǅɉÆȅǻǺŋ ،$C_{15}H_{11}NO$ ÛPPO **،2,5-Diphenyloxazole R** ǿȿàǻÊõǉ ŌǼǺȤ ɄǝǻǺǪ

.scintillation counting

Û1963 ÛSRIP) K_2HPO_4 **،Dipotassium hydrogen phosphate R** ÿȤǼȅǻǺȤǦǉ ǦǼǝǻǺǪ ƙǅȘǿǼŢǉ ǧǻǺÊǶ

.(81 ǦǶǻÔǉ

.(82 ǦǶǻÔǉ Û1963 ÛSRIP) $C_{10}H_{14}N_2NaO_8, 2H_2O$ **،Disodium edetate R** ÿȤǺǻȤÔǉ ǦǼǝǻǺǪ ǧǻǪǺǼǺǉ

ǿǻŧǉ Ž ǦǡǻǾɧ ÛR ÿȤǺǻȤÔǉ ǦǼǝǻǺǪ ǧǻǪǺǼǺǉ **.VS ǿ ǿȤŋ 0.05 Disodium edetate**ÿȤǺǻȤÔǉ ǦǼǝǻǺǪ ǧǻǪǺǼǺǉ ǿȤŸȚ

.Ōŋ 1000 Ž $C_{10}H_{14}N_2Na_2O_8$ ȸŋ ȟ 16.71 ɁŸȝ ɃȤǪǶǼǉ

ŌŌǺƚ :ǦǦȅǻǺŋ ǦǼǿǻǪǉ ǦŌǺǻÛǉ ǼȞƚ .ǦǦȅǻǺŋ ǦŌǺǻÛǽ ȨǼȿǼǉ ÂǼõǻǪǉ ȸŋ ȨŌǶǪǉ ȽǪǺ *.standardization ȄǼǼŌǫǉ ǦŌǺǻü*

ȸŋ Ōŋ 10 ȣǻȒƚ ÛŌŋ 400 ȽǅɯǗ ȧǿȿǻ ƃǉ ÛǦǼüȤǦȒŋ ǦǫȿàȤŋ ÛR2 ÿȤǼÊǿǻÒǉ ǧǻǫȤǻǺƥ ȸŋ ŊŸŋ 200 ǦǡǻǺǪ

Ȓƥ ǿȤŸȚ ȸŋ Ōŋ 2 ŌǹǼƚȿ ÛǦȝǻȅ ǦǅǻǅǺǽ ȧǿȿǼǉ ɁÛȣƚ .slurry ǦǽȿǾ ŌǼÒÎǫǉ ǦǼǫǽǿȿǻ ǦõǺǵ õǺǶƚȿ Ûǿǻŧǉ

ɁȤǪȚ õǺǶƚ .ǦȝǻÊǉ ǦǅǻǅǺà ǦȤǻǵȿ ȧǿȿǼǉ ǦǺǼɍ ƙǽ ŌǹǼɧ ȒÒǼɧ ȸŋ TS (ǿ/ȟ 70~) ŌǺǿȤŸõȿǿǼŢǉ

ÛȒÒǼǼŸǉ ɄǅǿǻʅǉǦÛÊǉȿ ÛȧǿȿǼǉ ÆǫǻȤǅ ŌÊȣƚ .ÿȤǼÊǿǻÒǉ ǧǻǫȤǻǺõ ǦǡǻǽȡɄǿǫǻǿȿǻ ŌÒÎǽ ȧǿȿǼǉ

ÛɄÊǼüǻǺȣǪ õǻǺǶŋ õǺǶƚ ȷǉ ŌȒǺǺ ÛǿȤŸɨǉ õǺǶƚ ǺɫǺǼǽ .Ōŋ 100 ǦǡǻǺǪ ƃǉ ǿǻŧǻǽ ȤǻǺǺȿ ÛǿǻŧǻǽǦȝǻÊǉ ǦǅǻǅǺȿ

Ōn 10 ȢǺŘŀ .Ōn 50 ǈDzШ burette Ǧǵǻǆè ȯŸǹ ȸn ӯɀǺǻɀÔǟ ǦǼǻǺǺ ğǺǾǻǼǻ ȯɀŸŢ ȸn Ōn 30 ǦǟǻǼ ȢǺŘŀ ǺȞÎn ȷǺǺn ȸn ȿǺ R ȷɀȮǻȮǟ ǺȞÎn ȷǺǺn ȸn ȟ 0.3ȿ TS (ȯ/ȟ 70~) ӯɀǺǻɀÔǟ ǼǼÊõȿǿǼǼ ȯɀŸŢ ȸn ǦǺŒ ǦÛŌǺ ȧǿȁɉǟ ɈɀŸǟ Бǚ ӯɀǺǻɀÔǟ ǦǼǻǺǺ ğǺǾǻǼǺqǟ ȯɀŸǀȶǟ ǥǺǺȞǻ ȝǟǺǩȿ R ɄŸǼÊõɀǺǺȮǟ ɈɀȮǻȮǟ Řƥ (ȯ/ȯɀn 0.05) ӯɀǺǻɀÔǟ ǦǼǻǺǺ ğǺǾǻǼǻ ȯɀŸŢ ȸn Ōn 1 ǜɀǺȮǀ ӯɀǼÊǻȮǟ ğǺɀǟǺƥ ȸn ȠŸn 5.005 Ōõ .ǥǺǺȞǻ .VS

ğǺǺÊǻ **Disodium hydrogen phosphate, anhydrous, R**ǦǼǻnŸǟ Ûӯɀǻǻɀ Ôǟ ǦǼǻǺǺ ƙDzȿǿǼǼTǟ ğǺǺÊǻ .(193 ǦǀǻÔǟ Û1963 ÛSRIP) Na_2HPO_4 . R ÛǦǼǻn ɍ Ûӯɀǻǻɀ Ôǟ

.(85 ǦǀǻÔǟ Û1963 ÛSRIP) C_2H_5OH ، **Ethanol, dehydrated, R** ÛǒǻȶǞ ţȿǺǺn Ûȯɀǻǻǻqǟ

.(84 ǦǀǻÔǟ Û1963 ÛSRIP) R (ǦǻȶǞ Ž 95) ȯɀǻǻǟ **TS** ȯ ȟ **750~** **Ethanol** ȯɀǻǻǻqǟ ȯɀŸŢ

(ȯ/ȟ 750~) ȯɀǻǻǻqǟ ȯɀŸŢ ، **Ethanol, sulfate-free, TS** Ûğ ǺǺŸÊǟ ȸn БǺȴǟ Û ȯ ȟ **750~** ȯɀǻǻǻqǟ ȯɀŸŢ ÛŌn 2 ǦǟǻǼ ǈDzǵ Бǚ TS (ȯ/ȟ 750~) ȯɀǻǻǻqǟ ȯɀŸŢ ȸn Ōn 25 ǺǺǺǺ :БǺǾǟ ǿǺǾǹɍǟ ɄøǦŸ ɃØǟ TS ĘŸȞǾÊǹ ȸn Ōn 5ȿ ÛǒǻȶǞ ȸn Ōn 42ȿ TS (ȯ/ȟ 70~) ŌǺǿɀŸõȿǿǼǼTǟ Řƥ ȯɀŸŢ ȸn Ōn 3 ȸn ȷǺǺn ȢǺŘŀ ɃɀǾȝ .(113 ǦǀǻÔǟ ǺŢǻǟ) "ğǺǺŸÊǟ ŌDzɉ ɃǼΣǟ ǿǺǾǹɍǟ" Ž Ȣɀȍɀn ɀŁ ǺȶõĘǦÛŀ .TS ӯɀǺǿǺǦǟ ğǺǺŸè .Ōn/ӯǟǺȡȿǺȮn 20 ȸȝ ǼǺÂǺ ɍ Ǻn ɁŸȝ TS ğǺǺŸÊǟ ȸn БǺȴǟ (ȯ/ȟ 750~) ȯɀǻǻǻqǟ ȯɀŸŢ

.Ōn1000 Бǚ ǒǻȶǺǟ ZǺǺǺȶǟ TS (ȯ/ȟ750~) ȯɀǻǻǻqǟ ȸn Ōn 950 ǦǟǻǼǻ ȯɀŸŢ .**TS** ȯ ȟ**710~** ȯɀǻǻǻqǟ ȯɀŸŢ

.Ōn1000 Бǚ ǒǻȶǺǟ ZǺǺǺȶǟ TS (ȯ/ȟ750~) ȯɀǻǻǻqǟ ȸn Ōn 525 ǦǟǻǼǻ ȯɀŸŢ .**TS** ȯ ȟ**375~** ȯɀǻǻǻqǟ ȯɀŸŢ

.Ōn1000 Бǚ ǒǻȶǺǟ ZǺǺǺȶǟ TS (ȯ/ȟ750~) ȯɀǻǻǻqǟ ȸn Ōn 210 ǦǟǻǼǻ ȯɀŸŢ .**TS** ȯ ȟ**150~** ȯɀǻǻǻqǟ ȯɀŸŢ

.(85 ǦǀǻÔǟ Û1963 ÛSRIP) $C_4H_{10}O$.**Ether R** ƘǾɉǟ

.(86 ǦǀǻÔǟ Û1963 ÛSRIP) $C_4H_8O_2$.**Ethyl acetate R** ŌǼǻǺqǟ ğǺǾǼèǚ

، $C_4H_{10}O_2$ ، **Ethylene glycol monoethyl ether R** ƙŸǼǻǺqǟ ȯɀȮǼŸȡ ŌǼǻǺǟ ɃǻǺǵǚ Ƙǿǚ

.ɈɀŸǟ ǦǼȝ ÛǻȢǺȍ ŌǻǺè .*Zȍɀǟ*

.R ɈɀǾèɉǟȿ R ƘǾɉǟȿ TS (ȯ/ȟ 750~) ȯɀǻǻǻqǟȿ ǒǻȶǟ ȝn ȷȿǺǹ .*miscibility ǦǀDzȿǺǻǟ*

.°ӯ 135ȿ 133 ƙǟ ǥǿǟǺǵ ǦDzǿǻ Ž %95 ȸȝ ŌǾǺ ɍ Ǻn ǺÛǾǺ .*ɈǼŸǿǟ ȯǺf*

.ȯ/ȠŸõ 0.93 ǦǟǻǼ .(Q_{20}) *Mass density ǦǼŸǾÔǟ ǦɀǺǻÔǟ*

ǦǀǻÔǟ Û1963 ÛSRIP) $FeNH_4(SO_4)$, $12H_2O$ ، **Ferric ammonium sulfate R** ŌǺǼǺΣǟȿ ӯɀǼǾɀnɉǟ ğǺǺŸè .(88

ÿzǂǫzƞɉǡ ğǠǠŸè ȸƞ ȯzŸȚ .TS ȯ ȟ 45 **Ferric ammonium sulfate** ǬǠǼǠǼΣǡş ÿzǂǫzƞɉǡ ğǠǠŸè ȯzŸȚ
.$FeNH_4(SO_4)_2$ ȸƞ ȯ/ȟ 45 ǦǡǡǠǭ Ƀzʒ R ǬǠǼǠǼΣǡş

.(88 ǦǶǠÔǡǡ Û1963 ÛSRIP) $FeCl_3,6H_2O$.**Ferric chloride R** ǬǠǼǠǼΣǡ ǼǠǿzŸõ

ȯ/ȟ 27 ǦǡǡǠǭ Ƀzʒ R ǬǠǼǠǼΣǡ ǼǠǿzŸõ ȸƞ ȯzŸȚ ،TS ȯ ȟ 25 **Ferric chloride** ǬǠǼǠǼΣǡ ǼǠǿzŸõ ȯzŸȚ
.$FeCl_3$ ȸƞ

ǦǶǠÔǡǡ Û1963 ÛSRIP) $FeNH_4(SO_4)_2, 6H_2O$ ،**Ferrous ammonium sulfate R** ǡşǼǠǼΣǡş ÿzǂǫzƞɉǡ ğǠǠŸè
.(89

ÿzǂǫzƞɉǡ ğǠǠŸè ȸƞ ȯzŸȚ .TS ȯ ȟ 1 **Ferrous ammonium sulfate** ǡşǼǠǼΣǡş ÿzǂǫzƞɉǡ ğǠǠŸè ȯzŸȚ
.$FeNH_4(SO_4)_2$ ȸƞ ȯ/ȟ 1 ǦǡǡǠǭ Ƀzʒ R ǡşǼǠǼΣǡş

.(90 ǦǶǠÔǡǡ Û1963 ÛSRIP) $FeSO_4, 7H_2O$ ،**Ferrous sulfate R** ǡşǼǠǼΣǡ ğǠǠŸè

ǻƎƞş ɄŸ8ƞ ǒǠƞ Ž R ǡşǼǠǼΣǡ ğǠǠŸè ȸƞ ȯzŸȚ .TS ȯ ȟ 15 **Ferrous sulfate** ǡşǼǠǼΣǡ ğǠǠŸè ȯzŸȚ
.(ȯ/ȯzƞ 0.1 ǡǿǠǾǠ Ǡƞ) $FeSO_4$ ȸƞ ȯ/ȟ 15 ǦǡǡǠǭ ɂŸ3 ɃzǪǶǂǒ ʒǡǠù ǾȮÎǟ
.ǠǱǠǡǠù ǠǠȒȚTS (ȯ/ȟ 15) ǡşǼǠǼΣǡ ğǠǠŸè ȯzŸȚ ȷzǾǠ ȷǠ Ǽƶ .*ǦȚǵŸƞ*

.**VS ȯ ȯzƞ 0.1 Ferrous sulfate** ǡşǼǠǼΣǡ ğǠǠŸè ȯzŸȚ

Ǧǂȶõ ȣǠȒǩş Ûʒǡǡù ǾȮÎǟ ǻƎƞş ɄŸ8ƞ ǒǠƞ ȸƞ Ǿƞ 90 Ž R ǡşǼǠǼΣǡ ğǠǠŸè ȸƞ ȟ 2.8 ǡǿǠǾ .*ǒǡǠǱqǡ*
.Ǿƞ 100 ʒǠǬq TS (ȯ/ȟ 1750~) ǬǠǿzǠŸÊǡǡ Ȑƥ ȯzŸȚ ȸƞ ǦǂzǠõ

:ǦǂǠǬǡǡ ǦǾǠǠÛǡǡ ǼÊɯ ȯ/ȯzƞ 0.1 ȯzŸǶȶŸǒ ȨǂȩǼǡǡ ǠǂǬǠǬǡǡ ȸƞ ȨǾǶǬǡǡ ɭǬǠ .*standardization* *ȄǂǾǬǡǡ ǦǾǠù*
ǠǠǩǩş TS (ȯ/ȟ 1.440~) ǬǠǿzǠÊǠǡǡ Ȑƥ ȯzŸȚ ȸƞ Ǿƞ 5 ǡşǼǠǼΣǡ ğǠǠŸè ȯzŸȚ ȸƞ Ǿƞ 40.0 ƂǠ ȣǠȒǩ
.VS (ȯ/ȯzƞ 0.02) potassium permanganate ÿzǂèǠǩzǦǡǡ ğǠǬǠ8ǠƞǨǟ ȯzŸǶȶê ǠǿzZ
.ȯǠȶǨǬèɍǡ ǾǦȩ ǥǠïǠǦƞ ȄǂǾǩ .*ǦȚǵŸƞ*

ǦǶǠÔǡǡ Û1963 ÛSRIP) CH_2O_2 . R ǬǂƞǿzǠǡǡ Ȑƥ TS ȯ ȟ **1080~ Formic acid** ǬǂƞǿzǠǡǡ Ȑƥ ȯzŸȚ
.*d*~1.2 (92

.ǦǦèǠǠƞ ǥşǠǾǠǟ ÿŸȽ ،**Gelatin R** ÿŸǡǡ

.ȯ/ȟ10 ǦǡǡǠǭ Ƀzʒ TS Û7.0 ǒǠȽǠǦǡǡ Ûğ ǠǠÊǠǡǡ Ǧǝǿǡǻ Ž ǡǿǠǭǡ R ÿŸǡǡ ȸƞ ȯzŸȚ ،**Gelatin TS** ÿŸǡǡ ȯzŸȚ

ğǡǿǼǂǡǡ ɃǻǠǥǠ ǡzǬǡǨǟzõzŸȡ ،**Glucose hydrate R** ǡzõzŸ8ǡǡ ğǡǿǼǂȽ

ȸʒ ǼǠǠǠ ɍş %99.0 ȸʒ ǾǾǠ ɍ Ǡƞ ɂŸ3 ɃzǪʒ .$C_6H_{12}O_6, H_2O$ Ûmonohydrate of α-D-glucopyranose

.ĞÀȦDzţä gåİţä Ƃǚ ţ ǽDZÀȍİæ Ğæ ǽÊŢ Û$C_6H_{12}O_6$ ǆŋ %101.5

.ĞHuəäÀöä CǼȝ ÜJǽŸöä Ȁ ǗǕ ƟøĞǦǵ şǚ Ƀøǽİæ àǽHuÊŋ şǚ Jǽ Ÿöä ĞǥǼȝ ğäøǽŸæ . *Ƶ öǽöä*

Ǝõǚ gøǽÔæ ā äşæ ÜTS (ȯ/ȟ 750~) ȯǽ φİǯAqä ǆŋ ǒÂDZ 60 ĞäǟÀǝ Žş ǒİţä ǆŋ ǒÂDZ 1 ĞäǟÀǝ Ž ā äşǽ . *ĞǒǽşǾöä*

.TS (ȯ/ȟ 750~) ƂİȢöä ȯǽφİǯAqä Žş ƂİȢöä ǒİţä Ž

ŌDZɉ ǼŸÛ0A ¢φä .R JǽæÀȮöä ǼǼÊõǚ ƟəİǼǥ ǆŋ ƂİƖä ǒİţä ǆŋ Ōŋ 50 Ž ȟ 5 ā äǾŀ .*acidity Ğȑǽŧ Σä*

ȯǽŸŢ ÿǼǺ0Êŀ ǬǼǵ ÛVS (ȯ/ȯǽŋ 0.02) ÿǽAåǽÔöä ǼǼÊõşøǼǼ ȯǽŸŢ ǆŋ Ōŋ 0.5 ǆȝ ǼAÂA ɍ İŋ ȯäǼȞ0èɍä

.ÀȞÎŧõ TS ȯǽφİǯAqä/ƘİöİǯǮ ȯǽǼÀöä

Ōŋ 1 Ž ÛǨæİǯöä Jàǽöä Ƃǚ ȍÖĞÊŋ ĞÀȦDzɦ ÛŋŸŋ 100 ā äǾŀ .*specific optical rotation Ƀǯǽİöä ɃÀÔĞöä ÀAşǼ0öä*

.$[\alpha]_D^{20^\circ C}$ = +52 to +53 ÜTS (ȯ/ȟ 100~) ÀǼφǽŋɉä ȯǽŸŢ ǆŋ ğäÀÛę ȝȒæ ȢİȒŀş ÛöİŧÄ ǆŋ

ȯǽŸŢ ǆŋ gÀÛę 1 ȢİȒŀş ǒİţä ǆŋ Ōŋ 10 Ž ȟ1 ā äǾŀ .*soluble starch or sulfates ǨǼAǼÊöä şǚ ā äşǾöä AÎAöä*

.ÀAöɉä JǽŸöİæ ȯǽŸƗä JǽŸ0A ÜTS åǽǼöä

100 ǆȝ ǼAÂA ɍş ȟ/ŋŸŋ 80 ǆŋ Ōęǚ ǼÕÀA ɍ Ü°ÿ 105 ĞDZøå Ž ǨæİǯöäJàǽöä ʡø0ǵ ƵȦDzŀ . *ƵǼADz0öİæ ǼÕAöä*

.ȟ/ŋŸŋ

.ȟ/ŋŸŋ 1.0 ǆȝ ǼAÂA ɍ .*sulfated ash ǨAŸÊţä åİŋÀöä*

0.1) åǽǼöä ȯǽŸŢ ǆŋ Ōŋ 30 ȢİȒŀ ÛöİŧÄ ǆŋ Ōŋ 50 Ž ÛĞǼüǽĞȒŋ Ğφşàǽŋ Ûȟ 0.1 ĞäǟÀǝ ā äǾŀ .*assay ĞÊAÖţä*

15 ȢİȒŀ .ĞÖǼęå 20 gǼŋ ǼõǨö ōÀ0Aş ÜTS (ȯ/ȟ 50) ÿǽAåǽÔöä ğİφǽæÀǷ ȯǽŸŢ ǆŋ Ōŋ 10ş VS (ȯ/ȯǽŋ

0.1) ÿǽAåǽÔöä ğİAŸèǽǼǫ ȯǽŸHuŧê åǽǼöä gåİAà ÀAİȞǩş TS (ȯ/ȟ 70) ŌAøǽŸõşøǼŢä Ȁ þ ȯǽŸŢ ǆŋ Ōŋ

Ōŋ 1 Ōõ .ĞAøşÀȓ ğİHuǼHuÔǩ ĞAǚ ʔÀDzǩş ǼȽİì ƘǼȞǩ ÂDzAŀ .ÀȞÎŧõ TS AÎAöä ȯǽŸŢ ȯİŧȞ0èİæ ÛVS (ȯ/ȯǽŋ

.$C_6H_{12}O_6$ ǆŋ ŋŸŋ 9.008 ȕǽİȮŀ VS (ȯ/ȯǽŋ 0.1) åǽǼöä ȯǽŸŢ ǆŋ

.$C_3H_8O_3$ ÛöİŧÄ ǆŋ gǨȢȍ ÀAåİÕŋ ȝŋ Propane-1,2,3-triol **.Glycerol R** ȯşǨÊǼŸȢöä

.$C_3H_8O_3$ ǆŋ ŋŸõ/ȟ 970 ǆȝ ŌÕA ɍ İŋ ʔŸȝ Ƀǽ0Ʒ

.ĞHuəäÀöä CǼȝ ÜǼùÀ0Êɦş ƟøäÀǡ ÛǸĞAÀÕǩ JǽŸöä CǼȝ ÛȢİȍ ŌəİȅÌ . *Ƶ öǽöä*

ȝŋ ɍş R Ƙǫɉä ȝŋ ǼǼŸŧȝ ǯşÂŋ Ƙɖ ÜTS (ȯ/ȟ 750~) ȯǽφİǯAqä ȝŋş ǒİţä ȝŋ ǯşÂŋ .*miscibility ĞǼDZşÂţä*

.R ÿøǽǽşøǽŸȮöä

.ȯ/ŋŸõ 1.256 ǆȝ ŌÕǩ ɍ .(Q_{20}) *Mass density ĞǼŸ0Ȯöä ĞǽİǯȮöä*

.1.469 ǆȝ ŌÕA ɍ .(n_D^{20}) *refractive index øİÊȮφɍä ǼÊȦŋ*

ÿİþ Ž ǆǺÊŀş TS (ȯ/ȟ 100~) ÀǼφǽŋɉä ȯǽŸŢ ǆŋ Ōŋ 1 ȝŋ Ōŋ 1 ǯÂŧŀ . *ʔÀǹɉä ĞǼÂ0ǺŢä åİǽŧİş ƘöşÀõɉä*

ȯζŸȚ ȡȠ ğǟÀÛę 3 ȣȦȒȽş ȕǝȦţǟ ÿȦȽΣǟ ȡȠ ţÂȽ .ÀÀȍ ɉȦǣ ŌǝȦÊǿǟ ȷζŸǪ ɍ ÜĘǝȦęǻ 5 ǥÆȠ °ÿ 6 ǦDZǿÆǿȦǣ ȕǝȦȠ

.ĘǝȦęǻ 5 ȯŸǹ ȦǬζŸǪȠ ŌǝȦÊǿǟ ǴǦÔȦ ɍ ÜTS ($ȯ/ȟ$ 40) ǦȒȦǿǟ ğǟÀǪǿ

.Ōȡ/ȠŸȠ 0..5 ȡȝ ÆȦÂȦ ɍ *.ǨǻŸÊţǟ ǻȦȠȦǿǟ*

.$C_{14}H_{12}N_2O_2$ Û2,2′-(Ethanediylidenedinitrilo) diphenol ،**Glyoxal bis(2-hyroxyanil) R** ȯȦÊõζƐŸȣǿǟ

ǿȦȒƐǣ ğǟǿζŸǣ .*ζȍζǿǟ*

.TS ($ȯ/ȟ$ 750~) ȡǹȦÊǿǟ ȯζǬȦǯȦȸǟ ȯζŸȚ Ž ǟǟşǣ .*ǦƐǬȦǣşǾǿǟ*

.°ÿ 2.5-2.3 *.ǿȦȚÔǬɍǟ ǦDZǿǻ*

Glyoxal bis(2-hyroxyanil) R ȯȦÊõζƐŸȣǿǟ ȡȠ ȯζŸȚ .**Glyoxal bis(2-hyroxyanil) TS** ȯȦÊõζƐŸȣǿǟ ȯζŸȚ

.$C_{14}H_{12}N_2O_2$ ȡȠ $ȯ/ȟ$ 10 ǦǟǟÀǣ ȝŸȝ ȸşȦΣǟ TS ($ȯ/ȟ$ 750~) ȯζǬȦǯȦȸǟ ȯζŸȚ Ž ǟǟǿȟ

،**Green stock standard TS** ÀȒǹɉǟ ȡȦÂȠǟ ȸǿȦƐȞǣǟ ȯζŸȚ

ȡȠ Ōȡ 10.4ş ÛTS ǟȦȞȞǿǟ ȷζǿ ȯζŸȚ ȡȠ Ōȡ 20.1 ÛTS ǨǿȦǣζȮǿǟ ȷζǿ ȯζŸȚ ȡȠ Ōȡ 3.5 ȻÜ ȣȦȒȽ .*ǿǟǻDZǬǟ*

ȒƥȯζŸȞȽǟ Ōȡ 1000 ȻÜ ζǿȦǼȽ ÜTS ÆȦÆΣǟ ȷζǿ ȯζŸȚ ȡȠ Ōȡ 4.0 ş ÛTS ğȦȠşÀȮǿǟ ȕǝȦǿ ȷζǿ ȯζŸȚ

.ǯÂȽşÛTS ($ȯ/ȟ$ 10~) ŌȦǿζȦŸÊǿǟ

.He ȡȠ $ȯ/Ō$ȡ 999.95 ȡȝ ŌǿȦ ɍ ȦȠ ȝŸȝ ȸζǪȜ ،**He** ،**Helium R** ÿζƐŸƐȚǟ

ǥÆǥş 50 ȝŸȝ ȸşȦΣǟ TS ȕȞŸţǟ ȯζŸƚǟ ȡȠ ȴŌȞȠ ȯζŸȚ .**Heparinized saline TS** ȕøȦǿȦǦƐȚǟ ȕȞŸţǟ ȯζŸƚǟ

.Ōȡ 1 ŌȯŽ ȡȦǿȦǦƐȚǟ ȡȠ ǦƐǿşǻ

.ǟȦèɉǟ ƙȠȦǪÊƐȚǟ ȡȠ $ȯ/ȟ$ 1.00 ȝŸȝ ȸζǪȜ ȯζŸȚ ،**Histamine, strong, TS** ÂõÀţǟ ÛƙȠȦǪÊƐȚǟ ȯζŸȚ

ȡȠ ÛǦƐùζǦȒȠ ǦǬşàζȠ ÛȠŸȠ 82.8 şÜ R ƙȠȦǪÊƐȚǟ ğȦÀÊǣ ȡȠ ÛǦƐùζǦȒȠ ǦǬşàζȠ ÛȠŸȠ 138.1 ǟǟǿȽ .*ǿǟǻDZǬǟ*

.Ōȡ 50.0 ǯȦǬǬ ǿȦţǟ ȡȠ ǿȣȦõ ǿǟÆŌȠ Ž R ƙȠȦǪÊƐȚǟ ÆȦǿζŸõşǿÆƐȽ ȕǝȦǿ

ǦǪȦȝ ǦƐDZȦDZǟ ÀȦǿǟζę Ž Û°ÿ 10-4 ȡȝ ÆȦÂȦ ɍ ǦDZǿǻ Ž TS ÂõÀţǟ ƙȠȦǪÊƐȚǟ ȯζŸȚ ȷÂȦȽ ȷÜ Æȥ .*ȡȦÂȦǪǿǟ*

.ȯζȒǿǟ ȡȠ ǦƐȽȚş ÛǥÀÀȦÔȟ ǦƐDZȦDZǟ ğǟǻǟÆè ğǟǣ

.ȦȠζȦ 30 ȡȠ ȯζùÜ ǥÆȠ ŌȽȞǪÊȽ ɍ .*ȡȦÂȦǪǿǟ ÀȽȝ*

.ǟȦèɉǟ ƙȠȦǪÊƐȚǟ ȡȠ $ȯ/Ƞ$ŸȠ 1.0 ȝŸȝ ȸζǪȜ ȯζŸȚ ،**Histamin TS** ƙȠȦǪÊƐȚǟ ȯζŸȚ

.TS ȕȞŸţǟ ȯζŸƚǟ ȡȠ ǦƐζȦõ ǦƐȽȮǣ TS ÂõÀţǟ ƙȠȦǪÊƐȚǟ ȯζŸȚ ζƐȦÅǪǣ TS ƙȠȦǪÊƐȚǟ ÀȒȞȽ .*ǿǟǻDZǬǟ*

.ƘȒȞǪǿǟ ǯàȦùTS ƙȠȦǪÊƐȚǟ ȯζŸȚ ȷζȮȦ ȷÜ Æȥ .*ǦȚǥŸȠ*

ȡȝ ŌǿȦ ɍ ȦȠ ȝŸȝ ȸζǪȜ .$C_5H_9N_3,2HCl$ ،**Histamine dihydrochloride R** ƙȠȦǪÊƐȚǟ ÆȦǿζŸõşǿÆƐȽ ȕǝȦǿ

.ǦȦȦDZţǟ ǥǻȦţǟ ȻÜ ţζDZÀǿȦǣ ǦǟζÊȚ Û$C_5H_9N_3,2HCl$ ȡȠ %101.0 ȡȝ ÆȦÂȦ ɍş Û%98.0

.ǴĦʋǝǟÀǿǟ ĆǼȝ ǕɩȤŸǿǟ ȐĿǟǕ ɃøȤŸǟ ȧȤĦǗɦ ȿǕ ɩȤŸǿǟ ǴǻǼȝ ğǟøȤŸǟ . *Ȥ ȍȤǿǟ*
.TS (ȯ/ȟ 750~) ȯȤǫǚǯǘɋǟ ȯȤŸȚ Ž ǟǟȿǽ ǕR ȯȤǫǚǯȶǟ Žȿ ŏǚȶǟ Ž ɩǟȿǾǿǟ Àǵ . *Ǵǻǚǟȿǿǿǟ*
.°ȳ 246-244 . *ǿǚȚÔɋȑǟ ȯǚƒ*
.ȟ/ɳŸɳ 5.0 ȡȝ ǼǺÂǺ ȑ . *ȤǺǺǷȤǿǟ ǼÕǚǿǟ*
Ōɳ 25ȿ R ȳøȤȤȿøȤŸȮǿǟ ȡɳ Ōɳ 5 ȣǚȒɫ .ŏǚȶǟ ȡɳ Ōɳ 10 Ž ǕǦĿȕȤǦȒɳ ǴǫȿàȤɳ Ǖȟ 0.15 ǴǟǟÀǾ ǟǟǾɫ . *ǴÊǺǺȰȶǟ*
(ȯ/ȯȤɳ 0.2) ğǚǫȤǟÀȮǿǟ ȡɳ ƃǚȘǟ ȳȤǺǻȤÔǿǟ ǼĿÊõȿøǼĿ ȯȤŸĦȶǟ ÀǺǚȞɫ .TS (ȯ/ȟ 750~) ȯȤǫǚǯǘɋǟ ȯȤŸȚ ȡɳ
ǼĿÊõȿøǼĿ ȯȤŸȚ ȡɳ Ōɳ 1 Ōõ .ÀȞÎȶõ TS ȯȤǫǚǯǘɋǟ/ƙǚǿǚǯȤ ȯȤȶĿǯǿǟ ȯȤŸȚ ȡɳ Ōɳ 0.5 ȳǟǼǺǚèǚǟ ǕVS
.$C_5H_9N_3,2HCl$ ȡɳ ɳŸɳ 9.21 ȕȤǚȮɫ VS (ȯ/ȯȤɳ 0.2) ğǚǫȤǟÀȮǿǟ ȡɳ ƃǚȘǟ ȳȤǺǻȤÔǿǟ
ǼǺÂǺ ȑȿ %98.0 ȡȝ ŌǺ ȑ ǚɳ ȝŸȝ ɃȤǪȝ .$C_5H_9N_3,2H_3PO_4$ ،**Histamine phosphate R** ƙɳǚǪÊĿȚǟ ğǚǺÊȤ
.ǴĿǝǚɳȲǿǟ ǵǚȶǟ ƃǕ ţȤǷǞǿǚǟ ǴǟȤÊȚ Ǖ$C_5H_9N_3,2H_3PO_4$ ȡɳ %101.0 ȡȝ
.ŏǟȤȚǟ Ž ǴǪǟǚǫ .ǴĦʋǝǟÀǿǟ ǴǻǼȝ ǕɩȤŸǿǟ ǴǻǼȝ ǕǴŸǺȤȕ ǕǴǺøȤȉȤɳ ğǟøȤŸǟ . *Ȥ ȍȤǿǟ*
.TS (ȯ/ȟ750~) ȯȤǫǚǯǘɋǟ ȯȤŸȚ Ž ɩǟȿǾǿǟ ǴĦĿĦȉ Ǖŏǚȶǟȡɳ ŏǟÂǷǕ 5 ǴǟǟÀǾ Ž ǴǟȿǽǾ . *Ǵǻǚǟȿǿǿǟ*
.°ȳ 132 ǴǟǟÀǾ . *ǿǚȚÔɋȑǟ ǵǿǚǚǵ ǴǷǼǿǻ*
.ȟ/ɳŸɳ 60-50 ȤĿ ŏǚȶǟ ȡɳ ȜȤǪǂǟ Ǖȟ 1.0 ǴǟǟÀǾ ȯǚȶȞǪèǚǟ ǕÀÎĿȤ ȯøǚõ ǴŌǺÀǕǟ ȡĦȞɫ . *water ŏǚȶǟ*
Ōɳ 25ȿ R ȳøȤȤȿøȤŸȮǿǟ ȡɳ Ōɳ 5 ȣǚȒɫ .ŏǚȶǟ ȡɳ Ōɳ 10 Ž ǕǦĿȕȤǦȒɳ ǴǫȿàȤɳ Ǖȟ 0.15 ǴǟǟÀǾ ǟǟǾɫ . *ǴÊǺǺȰȶǟ*
(ȯ/ȯȤɳ 0.2) ğǚǫȤǟÀȮǿǟ ȡɳ ƃǚȘǟ ȳȤǺǻȤÔǿǟ ǼĿÊõȿøǼĿ ȯȤŸĦȶǟ ÀǺǚȞɫ .TS (ȯ/ȟ 750~) ȯȤǫǚǯǘɋǟ ȯȤŸȚ ȡɳ
ǼĿÊõȿøǼĿ ȯȤŸȚ ȡɳ Ōɳ 1 Ōõ .ÀȞÎȶõ TS ȯȤǫǚǯǘɋǟ/ƙǚǿǚǯȤ ȯȤȶĿǯǿǟ ȯȤŸȚ ȡɳ Ōɳ 0.5 ȯǚȶȞǪèǚǟ VS
.$C_5H_9N_3,2H_3PO_4$ ȡɳ ɳŸɳ 15.36 ȕȤǚȮɫ VS (ȯ/ȯȤɳ 0.2) ğǚǫȤǟÀȮǿǟ ȡɳ ƃǚȘǟ ȳȤǺǻȤÔǿǟ
ȡɳ ǼǝǟȤÎǿǟ ɩȤȮǪǨ ǕHo_2O_3 ȡɳ %99.9 ȡȝ ŌǺ ȑ ǚɳ ȝŸȝ ɃȤǪȝ .Ho_2O_3 .**Holmium oxide R** ȳȤĿȶȤȚǟ ǼĿÊõǕ
.Dy_2O_3ȿ Er_2O_3
.Àƥɉǟ ƃǕ ǟøǚȑ ɩȤŸǟ ȧȤĦǗɦ . *Ȥ ȍȤǿǟ*
.ŏǚȶǟ Ž ǟǟȿǽ Ƙɖ . *Ǵǻǚǟȿǿǿǟ*
،**Holmium perchlorate TS** ȳȤĿȶȤȚǟ ğǟøȤŸõƘǟ ȯȤŸȚ
TS (ȯ/ȟ 140~) ŌǺøȤŸõƘǴǿǟ Ȑƥ ȯȤŸȚ ȡɳ ǻȣǚõ øǼŌɳ Ž R ȳȤĿȶȤȚǟ ǼĿÊõǕ ȡɳ ȟ 40 ǟǟǾɫ ، *ŏǟǷǻɋǟ*
.Ōɳ 1000 ǯǚǪǫɋ
Ǖ1963 ǕSRIP) HI . R ŌǺǻȤǺøǼĿȚǟ Ȑƥ .**TS ȯ ȟ 970~ Hydriodic acid** ŌǺǻȤǺøǼĿȚǟ Ȑƥ ȯȤŸȚ
.(95 ǴĦǚÔǿǟ

. R Û3ĜÎţā ÛÕǁøzŸõşøÆƑTā Ȑƥ .TS ȯ ȟ 420~ Hydrochloric acid ÕǁøzŸõşøÆƑTā Ȑƥ ȯzŸʈ
.*d*~1.18 Ü(96 ĜĦÀÔöā Û1963 ÛSRIP)

420~) ÕǁøzŸõşøÆƑTā Ȑŧ∑ ȯzŸʈ .TS ȯ ȟ 250~ Hydrochloric acid ÕǁøzŸõşøÆƑTā Ȑƥ ȯzŸʈ
.*d*~1.12 ÜHCl ȡƞ ȯ/ȟ 250 āøÀÕǁ Àƞ ɁŸ3 ɃzǬ3 ÛöÀţā Ž TS (ȯ/ȟ

250~) ÕǁøzŸõşøÆƑTā Ȑƥ ȯzŸʈ .Hydrochloric acid ȯ ȟ 250 AsTS ÕǁøzŸõşøÆƑTā Ȑƥ ȯzŸʈ
:Bş A ƘƐöÀǬöā ȡǁøÀǬǹɍā ɄøĜŸł ɃØöā TS (ȯ/ȟ

(ȯ/ȟ 75) ÿzƐǭzɳɉā ğÀǭÆèzƐǭ ȯzŸʈ ȡƞ Ōƞ 5 ȣÀȒł ÛŌƞ 50 ǯÀǬǭɋ ŏÀţā ȡƞ ȣÀõ øāÆŌƞ Ōƞ 10 ȤǡÀǁ ŁÅł .A
.ɈzÖ ɃÜ ɈǬǁǁ ɍ ÜgÀȉÀĜƞ ōÀĦÛłş TS

ȣÀȒł ÛŌƞ 16 ɃÜ ȯÀǬÅł ɁøǬǵ ɄəÀƞ ÿÀƥ ɁŸ3 ÀÅǤł ÛAsTS ÿşƎöā ȡƞ Ōƞ 0.2 øāÆŌƞ Ōƞ 50 ɃÜ ȣÀȒł .B
ÛɈzŸöā ȡƞ Ōöǽ ɁŸ3 ȸÆǬÊł ÛĈÀƞ gÅǁǁä ǻzǄş ȡƞ ÆõüǬŸö ȀǁøşÀȑ ɈÀõ āǽÜ AsTS ÿşƎöā ȯzŸʈ ȡƞ ƎõÜ øāÆŌƞ
stannous chloride AsTS ɃÀǁÆÔŌöā ÆǁøzŸõ ȯzŸʈ ȡƞ ğāÀÛę 5ş ŏÀţā ȡƞ Ōƞ 50 ȣÀȒł .ƘÅĜǬöā gÆƞ ȯāzü
ȡƞ ɈǬǁǁ ɃØöā Ōöǽ ȡƞ gÆȉ Àǯõ ÜĜƟÀǁöā ĜÅÛŦöā ɈzÖ ɈzȮǁ ɍ .(ÑƐǭøÂöā) ŌƐǁÆèøɉā ŌǄɉ ÿÀĦöā øÀǬǹɍā ĘĜÛłş
.Ōƞ/ÿāÀȡşÀŌƞ 0.05 ɁŸ3 ÆǁÂǁ ɍ ŌƐǁÆèøɉā øāÆŌƞ ɈÜ ɁŸ3 gÀȚȚƕ ÛĜǁøÀƐȞǭ ĜÅÛǭ Ōƞ 0.2

. AsTS ȯ ȟ 250~ Hydrochloric acid, stannated ɃøÆƑÔŌöā ÛÕǁøzŸõşøÆƑTā Ȑƥ ȯzŸʈ
250~) ÕǁøzŸõşøÆƑTā Ȑƥ ȯzŸʈ ȡƞ ȣÀõ øāÆŌƞ AsTS ɃÀǁÆÔŌöā ÆǁøzŸõ ȯzŸʈ ȡƞ Ōƞ 1 ȤǡÀǁ ŁÅł .*ǒāÄǄɋā*
.Ōƞ 100 ǯÀǬǭɋ AsTS (ȯ/ȟ

.TS ȯ ȟ 70~ Hydrochloric acid ÕǁøzŸõşøÆƑTā Ȑƥ ȯzŸʈ
1000 ǯÀǬǭɋ ŏÀţā ȡƞ ȣÀõ øāÆŌƞ TS (ȯ/ȟ 250~) ÕǁøzŸõşøÆƑTā Ȑƥ ȯzŸʈ ȡƞ Ōƞ 260 ȤǡÀǁ ŁÅł .*ǒāÄǄɋā*
.*d*~1.035 Ü(ȯ/ȯzƞ 2 āøÀÕł Àƞ) Ōƞ

.Cl ȡƞ ÿāÀȡşÀŌƞ 50 ɁŸ3 ɃzǬ3 ÀǬö ɄŸƐƞ 1 Ōõ .Hydrochloric acid ClTS ÕǁøzŸõşøÆƑTā Ȑƥ ȯzŸʈ
1000 ǯÀǬǭɋ ŏÀţā ȡƞ ȣÀõ øāÆŌƞ VS(ȯ/ȯzƞ 0.1) ÕǁøzŸõşøÆƑTā Ȑƥ ȯzŸʈ ȡƞ Ōƞ 14.3 ȤǡÀǁ ŁÅł .*ǒāÄǄɋā*
.Ōƞ

(ȯ/ȟ 250~) ÕǁøzŸõşøÆƑTā Ȑƥ ȯzŸʈ .VS ȯ ȯzƞ 2 Hydrochloric acid ÕǁøzŸõşøÆƑTā Ȑƥ ȯzŸʈ
.Ōƞ 1000 Ž HCl ȡƞ ȟ 72.93 ɁŸ3 ɃzǬĦƐö ŏÀţǽ ȤǡÀǁ ŁÅł ÛTS

ɈāzÀ3 ȞƠ Ĝzzòzţā ĜÕǁÀÛöā ţÀĜǨǽ ȯzŸĦŧŸö ĘƐęÆöā ÂƐõÀǬöā ȡƞ ĘŌĦǬöā ɭǬǁ .standardization *ȄƐƐǬöā ĜÕǁÀü*
.VS (ȯ/ ȯzƞ 1) ÕǁøzŸõşøÆƑTā Ȑƥ ȯzŸʈ

(ȯ/ȟ 250~) ÕǁøzŸõşøÆƑTā Ȑƥ ȯzŸʈ .VS ȯ ȯzƞ 1 Hydrochloric acid ÕǁøzŸõşøÆƑTā Ȑƥ ȯzŸʈ

.Ōŋ 1000 Ž HCl ȸŋ ȟ 36.47 ʔŸȝ ɃǈǪǶǶ ŏİţİǣ ȤǻǺł ÛTS

ǦǣǻÀǿ ǡǡØł :ǦǼǿİǪǿǡ ǦÕÀÛǿİǣ ȯ/ȯǈŋ 1 ȯǈŸǶƚŸǿ ȨǼęǼǡ ÂǼÕÀǪǿǡ ȸŋ ȨŌǶǪǿǡ ȴǪÀ.*standardization* *ȄǼǼǪǿǡ ǦÕÀȕ*

Ž ÛǦȝİȅ 1 ǥǼŋ °ÿ 270 ǦDZøǼǿİǣ ǺǿǦÊŋ ǦÀǻDzţǡ ÛR ǦǼǻİŋȲǿǡ ÿǈÀǻǈÔǿǡ ǧİǿǈǣÀǷ ȸŋ ÛǦǼȕǈǦȒŋ ǦǿşàǈŋÛȟ 1.5

.ÀȞÎƚÕ TS ȯǈǿİǮÀǫǡ/ŌǼǮţǡ ǦǼǿİÕǨÀǣ ȯǈŸȚ ȯİƚȞǪȅİǣ ÛŌÀøǈŸÕşøǼǼTǡ ȐȸȸøƚŔ ŏİţǡ ȸŋ Ōŋ 50

(ȯ/ȯǈŋ 1) ŌÀøǈŸÕşøǼǼTǡ ȐȸȸǶƚȸ ȯǈŸȚ ȸŋ Ōŋ 1 ȕǈİÒł R ǦǼǻİŋȲǿǡ ÿǈÀǻǈÔǿǡ ǧİǿǈǣÀǷ ȸŋ ȠŸŋ 52.99 ŌÕ

.VS

(ȯ/ȟ 250~) ŌÀøǈŸÕşøǼǼTǡ Ȑ ȸ ȯǈŸȚ .VS ȯ ȯǈŋ **0.5 Hydrochloric acid** ŌÀøǈŸÕşøǼǼTǡ Ȑ ȸ ȯǈŸȚ

.Ōŋ 1000 Ž HCl ȸŋ ȟ 18.23 ʔŸȝ ɃǈǪǶǶ ŏİţİǣ ȤǻǺł ÛTS

ȷǡǈǺȝ ǨƠ Ǧǈǈȍǈţǡ ǦÕÀÛǿǡ ţİǦǨİǣ ȯǈŸǶƚŸǿ ȨǼęǼǡ ÂǼÕÀǪǿǡ ȸŋ ȨŌǶǪǿǡ ȴǪÀ .*standardization* *ȄǼǼǪǿǡ ǦÕÀȕ*

.VS (ȯ/ ȯǈŋ 1) ŌÀøǈŸÕşøǼǼTǡ Ȑ ȸ ȯǈŸȚ

(ȯ/ȟ 250~) ŌÀøǈŸÕşøǼǼTǡ Ȑ ȸ ȯǈŸȚ .VS ȯ ȯǈŋ **0.1 Hydrochloric acid** ŌÀøǈŸÕşøǼǼTǡ Ȑ ȸ ȯǈŸȚ

.Ōŋ 1000 Ž HCl ȸŋ ȟ 3.647 ʔŸȝ ɃǈǪǶǶ ŏİţİǣ ȤǻǺł ÛTS

ȷǡǈǺȝ ǨƠ Ǧǈǈȍǈţǡ ǦÕÀÛǿǡ ţİǦǨİǣ ȯǈŸǶƚŸǿ ȨǼęǼǡ ÂǼÕÀǪǿǡ ȸŋ ȨŌǶǪǿǡ ȴǪÀ .*standardization* *ȄǼǼǪǿǡ ǦÕÀȕ*

.VS (ȯ/ ȯǈŋ 1) ŌÀøǈŸÕşøǼǼTǡ Ȑ ȸ ȯǈŸȚ

250~) ŌÀøǈŸÕşøǼǼTǡ Ȑ ȸ ȯǈŸȚ .VS ȯ ȯǈŋ **0.015 Hydrochloric acid** ŌÀøǈŸÕşøǼǼTǡ Ȑ ȸ ȯǈŸȚ

.Ōŋ 1000 Ž HCl ȸŋ ȟ 0.5470 ʔŸȝ ɃǈǪǶǶ ŏİţİǣ ȤǻǺł ÛTS (ȯ/ȟ

ȷǡǈǺȝ ǨƠ Ǧǈǈȍǈţǡ ǦÕÀÛǿǡ ţİǦǨİǣ ȯǈŸǶƚŸǿ ȨǼęǼǡ ÂǼÕÀǪǿǡ ȸŋ ȨŌǶǪǿǡ ȴǪÀ .*standardization* *ȄǼǼǪǿǡ ǦÕÀȕ*

.VS (ȯ/ ȯǈŋ 1) ŌÀøǈŸÕşøǼǼTǡ Ȑ ȸ ȯǈŸȚ

250~) ŌÀøǈŸÕşøǼǼTǡ Ȑ ȸ ȯǈŸȚ .VS ȯ ȯǈŋ **0.01 Hydrochloric acid** ŌÀøǈŸÕşøǼǼTǡ Ȑ ȸ ȯǈŸȚ

.Ōŋ 1000 Ž HCl ȸŋ ȟ 0.3647 ʔŸȝ ɃǈǪǶǶ ŏİţİǣ ȤǻǺł ÛTS (ȯ/ȟ

ȷǡǈǺȝ ǨƠ Ǧǈǈȍǈţǡ ǦÕÀÛǿǡ ţİǦǨİǣ ȯǈŸǶƚŸǿ ȨǼęǼǡ ÂǼÕÀǪǿǡ ȸŋ ȨŌǶǪǿǡ ȴǪÀ .*standardization* *ȄǼǼǪǿǡ ǦÕÀȕ*

.VS (ȯ/ ȯǈŋ 1) ŌÀøǈŸÕşøǼǼTǡ Ȑ ȸ ȯǈŸȚ

ȸŋ ȟ 60 ǦǣǻÀǿ ʔŸȝ ɃǈǪȜ ŏİţǡ Ž ȯǈŸȚ .TS ȯ ȟ **60~ Hydrogen peroxide** ƘDZşøǼǼTǡ ǼǼÊÕşƘǣ ȯǈŸȚ

.ÀǪǿ 1 ŌÕ Ž H_2O_2

.(98 ǦǶÀÔǿǡ Û1963 ÛSRIP) H_2S .**Hydrogen sulfide R** ƘDZşøǼǼTǡ ǼǼÀŸȅ

.ǻøİǦǿǡ ŏİţǡ Ž R ƘDZşøǼǼTǡ ǼǼÀŸȅ ȸŋ ȜǦÎȟ ȯǈŸȚ .**Hydrogen sulfide TS** ƘDZşøǼǼTǡ ǼǼÀŸȅ ȯǈŸȚ

.ƘȒǶǪǿǡ ȝàİȕ TS ƘDZşøǼǼTǡ ǼǼÀŸȅ ȯǈŸȚ ȷǈÒÀ ȷȕ Ƶ .*ǦȚǵŸŋ*

.(101 ǴĦȦÔöä Û1963 ÛSRIP) I_2 ،**Iodine R** ǻζĘöä

،**Iodine TS** ǻζĘöä ȯζŸƮ

Ȧŋ) Ōŋ 100 ǯȦǫ ŏȦţä ȡŋ ȣȣŏ ǿäǼŌŋ Ž R ÿζĘèȦǩζ ǼǻζΛ ȡŋ ȟ 3ş R ǻζĘöä ȡŋ ȟ 2.6 ȃäǾƚ .*ǒäȦȚǫ*
.(ȯ/ȯζŋ 0.1 ȃǿȦŌƚ

ʔŸȝ Ƀζ ŏȦţä ȡŋ ȣȣŏ ǿäǼŌŋ Ž ÛR ÿζĘèȦǩζ ǼǻζΛş R ǻζĘöä ȃäǾƚ .**VS** ȯ ȯζŋ **0.1** **Iodine** ǻζĘöä ȯζŸƮ
.Ōŋ 1000 Ž KI ȡŋ ȟ 36.0ş I ȡŋ ȟ 25.38

ȯζŸĦƭȇ Ōŋ 25.0 ǥȦȞƭȇ ȯ/ȯζŋ 0.1 ȯζŸĦƭŸö ĘĘǼöä ÂĘÕȦöä ȡŋ ĘŌĦöä ȴΛ .*standardization* *ȄĘŌöä ǴŌȦü*
.ȦȞÎƭõ ȦÎȦöä ȯζŸƮ ȯȦƭȞèȦ ÛVS (ȯ/ȯζŋ 0.1) ÿζΛǻζÔöä ǧȦȦŸèζĘ

Ƀζ ŏȦţä ȡŋ ȣȣŏ ǿäǼŌŋ Ž ÛR ÿζĘèȦǩζ ǼǻζΛş R ǻζĘöä ȃäǾƚ .**VS** ȯ ȯζŋ **0.02** **Iodine** ǻζĘöä ȯζŸƮ
.Ōŋ 1000 Ž KI ȡŋ ȟ 7.2ş I ȡŋ ȟ 5.076 ʔŸȝ

ȷäζΛȝ ǨƠ Ǵζζòζţä ǴŌȦÛöä ţȦǨüä ȯζŸĦƭŸö ĘĘǼöä ÂĘÕȦöä ȡŋ ĘŌĦöä ȴΛ .*standardization* *ȄĘŌöä ǴŌȦü*
.VS (ȯ/ȯζŋ 0.1) ǻζĘöä ȯζŸƮ

Ƀζ ŏȦţä ȡŋ ȣȣŏ ǿäǼŌŋ Ž ÛR ÿζĘèȦǩζ ǼǻζΛş R ǻζĘöä ȃäǾƚ .**VS** ȯ ȯζŋ **0.01** **Iodine** ǻζĘöä ȯζŸƮ
.Ōŋ 1000 Ž KI ȡŋ ȟ 3.6ş I ȡŋ ȟ 2.538 ʔŸȝ

ȷäζΛȝ ǨƠ Ǵζζòζţä ǴŌȦÛöä ţȦǨüä ȯζŸĦƭŸö ĘĘǼöä ÂĘÕȦöä ȡŋ ĘŌĦöä ȴΛ .*standardization* *ȄĘŌöä ǴŌȦü*
.VS (ȯ/ȯζŋ 0.1) ǻζĘöä ȯζŸƮ

،IBr ،**Iodine bromide R** ǻζĘöä ǼĘŋşȦ

.ƗǴöä Ƃ ȃǿȦȓ ǻζèşȧǿȁȷäƂ ȃǿȦȓ ǻζè ȷζŸ ǧäǿζŸ .*Ȥòζä*

Ȑƥş ÛR ƘǭȷȦş ÛR ÿǿζζşǿζŸȮöäş ÛTS (ȯ/ȟ 750~) ȯζȦǯȦǫä ȯζŸƮ Žş ÛŏȦţä Ž ȷȦşǾöä ȦǦ .*ǴȦşǾöä*
.R ɄȚŸǯöä ŌĘèȷä

.°ÿ 40 ǴäȦȩ .*ǿȦȚÔȓ ǥǿȦǵ ǴȚǿǻ*

.ŏζȒöä ȡŋ ǴȟƮ ÛȧŸȡǫä ǴƭȮƮ ǴΛşȦǵ Ž ÛǻǿȦ ȷȦȮŋ Ž ȷÂȺƚ .*ȸΛȺöä*

،**Iodine bromide TS** ǻζĘöä ǼĘŋşȦ ȯζŸƮ

.Ōŋ 1000 ǯȦǫ R ɄȚŸǯöä ŌĘèȷä Ȑƥ ȡŋ ȣȣŏ ǿäǼŌŋ Ž R ǻζĘöä ǼĘŋşȦ ȡŋ ȟ 20 ȃäǾƚ .*ǒäȦȚǫ*
.ŏζȒöä ȡŋ ǴȟƮ ÛȧŸȡǫä ǴƭȮƮ ǴΛşȦǵ Ž ȷÂȺƚ .*ȸΛȺöä*

،**Iron colour, strong, TS** ÂŎȦţä ÛǼΛǼΣä ȷζȯ ȯζŸƮ

ÛTS (ȯ/ȟ 10~) ŌΛǿζȦŸÊöä Ȑƥ ȯζŸƮ ȡŋ Ōŋ 120 Ž R ŌΛǼΛǼΣä ǼΛǿζŸõ ȡŋ ȟ 6.6 ȃäǾƚ .*ǒäȦȚǫ*

.$FeCl_3,6H_2O$ ÂƐõÀǩ ȸƐȞƾȿ ÛǙȿǿȿÀȑ Ȭȯǽ ȷȧõ ãǽǚ Ûȯȥǚǂȁ ǴȉÀȽ

Бǚ ȯȥǚǂȁ ãǾȽ ȸȵ Ȭȵ 10.0 ȬȰȽ .Ȭȵ 25.0 ȝȧǫǭ ȯȧƫȁ ȸȵ 8ȧõ ǿãǼȬȵ Ȭȵ 5.0 ȤȧȦǼȽ *.assay ǴȄǼȫȽ* VS (ȯ/ȯȥȵ 1) ȬǺǿȥǚõȿǿǼȶȁ Ȑþ ȯȥǚȞȶȅ 3-2 Бǚ ȯȧȽȧǴȁ ǴȞȗȯȽ .ȯȧƫȁ ȸȵ Ȭȵ 60 8ȧȒȽȿ ÛǦǚǅȥǵ Ûºȳ 15 ȃǿȧȯȽ ȧȵ Бǚ ȯȥǚǂȁ ȸȧǼȄȽ .R ȥ8ǫȥȯȁ ǥȧȶǥ ȧǿȿ ȯȧȶǨȅȧ ÛTS (ȯ/ȟ 100~) ȧǭȥȵȷȁ ȯȥǚȚȿ ȬǚǺȄǼȧȅȥȦǚȄȁ Ȑþ ȯȥǚȚ ȸȵ Ȭȵ 2 ȯȧȶǨȅȧ ÛVS (ȯ/ȯȥȵ 0.05) ȳȥǺȧȥȮȁ ǧȧǫǼǚ ȯȥǚȞȶȅ ȀȀǩȿ ȀȀȍȷȁ Бǚ ȗȮǚǺǚȁ ȤǼȧȴȁ ȸȵ ȯȥǚǂȁ ȷȥȯ ȯǼǵǺ ʔǿǫǵ ÛȀǨȊȶõ TS (ȯ/ȟ 175) sulfosalicylic acid .$FeCl_3,6H_2O$ ȸȵ ȠǚȠ 13.52 ȕȥȧȮȽ vs ȯ/ȯȥȵ 0.05) ȳȥǺȧȥȮȁ ǦǼȧǩ ǧȧǫǼǭȁ ȯȥǚȚ ȸȵ Ȭȵ 1 Ȭõ .ȗȊȬȁ

.$FeCl_3,6H_2O$ ȸȵ Ȭȵ/ȠǚȠ 45.0 ʔǚȝ Ƀȥǫʒ ȯȥǚȚ **،Iron colour TS** ǼǺǼΣȁ ȷȥȯ ȯȥǚȚ

TS ÂȭÀƫȁ ǼǺǼΣȁ ȷȥȯ ȯȥǚȚ ȤȧȦǼȽ ÛȬȵ 100 Ȥ .$FeCl_3,6H_2O$ ȸȵ 4.500 ʔǚȝ Ƀȥǫʒ ȯȥǚȚ ȀȒȞȽ *.ǿȁǅǭȁ* .ȦǺǿȿȀȑ Ȭȯǽ ȷȧõ ãǽǚ ÛTS (ȯ/ȟ 10~) ȬǺǿȥȦǚȄȁ Ȑþ ȯȥǚȞȶȅ

،Iron standard FeTS Ƀǿȧǩƫȁ ǼǺǼΣȁ ȯȥǚȚ

ȯȥǚȚ ȸȵ Ȭȵ 5 8ȧȒȽ ÛȯȧƫȁȸȵȬȵ 100 Ȥ R ȬǺǼǺǼΣȁȿ ȳȥǼǭȥȵȷȁ ǧȧȦǚȅ ȸȵ ȟ 0.173 ȃãǾȽ *.ǿȁǅǭȁ* ȯȥǚǂȁ ãǾȽ ȸȵ Ȭȵ 1 Ȭõ .Ȭȵ 1000 ȝȧǫǭ ȯȧƫȁ ȸȵ ȧ8ȧõ ǿãǼȬȵȿ TS (ȯ/ȟ 70~) ȬǺǿȥǚõȿǿǼȶȁ Ȑþ .ǼǺǼΣȁ ȸȵ ȳãȀȡȿȀȮȵ 20 ʔǚȝ Ƀȥǫʒ

Ȭȵ/ȠǚȠ 5.0 ʔǿǫǵ ʔǚȝ Ƀȥǫʒ ǨȒȞǫȁ ȝãȧȕ ȯȥǚȚ **،Karl Fischer reagent TS** ȀȊǼ ȯǿȧõ ȤȉȧõȯȥǚȚ ȸȵ Ȭȵ 1 Ȭõ Ȥ ȯȧƫȁ ȸȵ ȠǚȠ 2.5 ȸȵ Ȭȩǚ Бǚ ȗȧƫȁ ȕȥȧȮƫȁ ȎȬǫ ãǽǚ ȯȥǚǂȁ ȬȶǨȄȽ ɍ ȷǚ Ǽƶ .ȯȧƫȁ ȸȵ .ȤȉȧȮȁ

ÛȷǚǮȁ Ȥ ȧ́ȆȽ Ûanhydrous pyridine R ȗȧȵȸȁ ȸǺǼǨǴȁ ȸȵ Ȭȵ 100 Ȥ R ǻȥǼȁ ȸȵ ȟ 63 ȃãǾȽ *.ǿȁǅȥɍ* Ǽƶ ÛȷȀȥȁ ȸȵ ȟ 32 ǷǿãǼȬȵ ǼȄõ ǫǼʒ ʔǿǫǵ ȯȥǚǂȁ Ȥ sulfur dioxide R ǨǺȆȮȁ ǼǼȄõǚ ȗȧǩ ǿȀȶȿ Ȭȵ 500 ȝȧǫǭ R ȯȧƫȁ ƫȿȀȵ ȯȥǫǩǼƫȁ ȸȵ ȧ8ȧõ ǿãǼȬȵ 8ȧȒȽ .ǦǺȥƨȁ ǥȿȁǼǴȁ ȋȧȎǫȵȁ ǼǺǅǫǿ ǿǾΣȁ ȗȵȥǩ ȸȵ ȦǺǿȧΘ ǥȧȥȁȥǫƫȁ ȬǼȧǂȁ ȝȀȶȅ TS ȀȊǼ ȯǿȧõ ȤȉȧõȯȥǚȚ ǨȒƠ ȦȒǚ ȸȮȥ .ǴȝȧȅƐ 24 ǥǼȵ ǼõǨȯ ȭȀǫȿ ÛǼȅȧȵ ȬȮȊȁ ȷȧǫȀǼȽ ȧȵǼʒ ƙǫȁǫ ȷȧǫȥȮǺ ȸǺǾǚȁ ÛȯȥǫǩǼƫȁ Ȥ ǻȥǼȁ ȸȵȿ ȸǺǼǨǴȁ Ȥ ǨǺȆȮȁ ǼǼȄõǚ ȗȧǩ .ȦȰǵɍ ǥǿȥõǾƫȁ ǧȧǦǚȖǫȶǚ ǼǼǅǫȄǺ ȷǚ Ǽƶ ȷǨȀȁ ȯȥǚǂȁ .ȯȥȒȁ ȸȵ ȷȦȶȚ Ûȯȧǩƫȁ ȬǼǴȅ ʔǚȝ

ȸȵ Ȭȵ 20 ǦǼȧǩ 8ȧȒȽ :ǦǼȧǫȁ ǦȬǺȀÛȯȧȅ ȯȧƫȁ ȸȵ ȨǼȿǼȁ ʔȥǫǂȁ ȸȵ ȨȰȞǫȁ ȴǺ *.standardization ȄǼȬǫȁ ǦȬǺȀȕ* ȷȿǻ TS ȀȊǼ ȯǿȧõ ȤȉȧõȯȥǚȞȶȅ ǦǺȀȾȁ ǦÛȬǫ ʔǿǫǵ ȀȀǩȿ ǥȀȀǩƫȁ ȯȧȝȿ Бǚ ÛR ȯȧƫȁ ƫȿȀȵ ȯȥǫǩǼƫȁ ǦÛȬǫ ʔǿǫǵ ǦǼǫȧǫ ȀȀǩȿ ÛǦǼȕȥǦȒȵ ȷȿȀȥȵ Ûȯȧƫȁ ȸȵ ǼȅȧȵǿãǼȬȵ ȴȧǚȵ ȬȮȊȧ Ȭȵ̀ǼȽ .ȃȥǚÛƫȁ ȴǅΣȁ ȬǼǅȄǩ Ȥ ȯȥǚȞȶõ Ûȯȧǩƫȁ ȬǼǴȅ ʔǚȝ Ûȯȧƫȁ Ȭȵ̀ǼȽ ȷǚ ȸȮȶȽ .ȴǅΣȁ ȬǅȄȽ ÛTS ȀȊǼ ȯǿȧõ ȤȉȧõȯȥǚȞȶȅ ǦǺȀȾȁ

[illegible] hydrated [illegible] TS [illegible] 1 [illegible]

[illegible] Ethylene glycol monoethyl ether R [illegible] R [illegible]

[illegible] %97.0 [illegible] $La(NO_3)_3,6H_2O$ **Lanthanum nitrate R** [illegible] $La(NO_3)_3,6H_2O$

[illegible]

[illegible] 3 [illegible] 25 [illegible] 0.75 [illegible] *assay* [illegible] xylenol orange R [illegible] 20 [illegible] R [illegible] 3 TS (~130 [illegible]) [illegible] VS ([illegible] 0.05) [illegible] 1 [illegible] R [illegible] $La(NO_3)_3,6H_2O$ [illegible] 21.65 [illegible] VS ([illegible] 0.05) [illegible]

Lanthanum nitrate TS [illegible]

[illegible] TS (~130 [illegible]) [illegible] 1 [illegible] R [illegible] 4.3 [illegible] 100 [illegible]

[illegible] 100 [illegible] 1 [illegible] **Lead, strong, PbTS** [illegible]

[illegible] TS (~1000 [illegible]) [illegible] 5 [illegible] R [illegible] 0.1598 [illegible] 1000 [illegible]

[illegible] 10 [illegible] 1 [illegible] **Lead, dilute, PbTS** [illegible]

[illegible] 100 [illegible] PbTS [illegible] 10 [illegible]

[illegible]

[illegible] (105 [illegible] 1963 SRIP) $C_4H_6O_4Pb,3H_2O$ **Lead acetate R** [illegible]

[illegible] R [illegible] **TS** [illegible] **80 Lead acetate** [illegible]

([illegible] 0.25 [illegible]) $C_4H_6O_4Pb$ [illegible] 80 [illegible]

[illegible] (107 [illegible] 1963 SRIP) $Pb(NO_3)_2$ **Lead nitrate R** [illegible]

[illegible] 0.05 **Lead nitrate** [illegible] **.VS** [illegible]

16.56 [illegible] $Pb(NO_3)_2$ [illegible] 1000 [illegible].

[illegible] *standardization.* [illegible] 25.0 [illegible] 0.05 [illegible]

[illegible] 200 [illegible] 10 [illegible] TS [illegible] 20 [illegible]

[illegible] 11 [illegible] (0.05 [illegible]) VS.

[illegible] **Lithium perchlorate R.** $LiClO_4$.

[illegible] ~750 [illegible] TS [illegible] R [illegible]

[illegible] R.

[illegible] **Lithium perchlorate/acetic acid TS.**

[illegible] 10.64 [illegible] R [illegible] R1 [illegible]

1000 [illegible].

[illegible] **Macrogol 400 R.** [illegible] 400. [illegible] R 400 [illegible]

$H(OCH_2CH_2)_nOH$ [illegible] n [illegible] 8.2 [illegible] 9.1.

[illegible] hygroscopic [illegible].

average molecular weight. [illegible] 2.1 [illegible] R 400 [illegible]

[illegible] 25.0 [illegible] TS. [illegible]

[illegible] 96-100 [illegible]

[illegible] 1 [illegible]

[illegible] 50 [illegible] (0.5

[illegible] VS 5 [illegible] TS. [illegible]

[illegible] 15 [illegible] VS (0.5 [illegible]

[illegible] 4000 [illegible]

[illegible]

[illegible] VS (0.5 [illegible]

[illegible] 380 [illegible] 420.

Mass density [illegible] (ρ_{20}). 1.110-1.140 [illegible].

[illegible] 4 [illegible] 8 [illegible] *Congealing point* [illegible]
[illegible] 0.4 [illegible] °[illegible]
[illegible] 4.5 [illegible] 7.5 [illegible] *pH value* [illegible] 50 [illegible]
[illegible] 5.0 [illegible] 50 [illegible] *acidity or alkalinity* [illegible]
(0.01 [illegible]) TS [illegible]
(0.01 [illegible]) VS [illegible]
[illegible] 2.0 [illegible]
[illegible] 10 [illegible] *sulfated ash* [illegible]
[illegible] 4 [illegible] 1 [illegible] *heavy metals* [illegible]
(~70 [illegible]) TS [illegible] 25 [illegible] 50 [illegible]
[illegible] 50 [illegible] 75 [illegible] *limit of monoethylene and diethylene glycols* [illegible]
[illegible] 250 [illegible] R [illegible] 250-100 [illegible] (1-2 [illegible]
[illegible] 100 [illegible] 1 [illegible] 25 [illegible]
[illegible] 25.0 [illegible]
[illegible] R [illegible]
[illegible] 50 [illegible]
[illegible] 10 [illegible] 15 [illegible] R [illegible]
525 [illegible] 5-2 [illegible] TS [illegible]
[illegible] 10 [illegible] TS [illegible] 15 [illegible] blank [illegible]
(400 [illegible]) TS [illegible] 10 [illegible] (400 [illegible]) TS [illegible]
[illegible] TS [illegible] 15 [illegible] R [illegible] 30 [illegible]
[illegible] 525 [illegible] 5-2 [illegible]
[illegible]

Magnesium oxide R [illegible] MgO.

[illegible]

[illegible] (~750 [illegible]) TS.

Magnesium sulfate R [illegible] $MgSO_4,7H_2O$ (SRIP [illegible] 1963 [illegible] 111).

.(112 ǦĦȦÔǖǟ Û1963 ÛSRIP) MnO_2 **.Manganese dioxide R** ÂǕȀĄţǟ ǼǕÊõǕ ȺǝȦǻ

،Manganese/silver paper R ǦȒȦǖǟ ÂǕȀĄţǟ ȧøş

15) ÂǕȀĄţǟ ğȦÂŸè ȯzŸŢş VS (ȯ/ȯzŋ 0.1) ǦȒȦǖǟ ğǟȀǻ ȯzŸŢ ȸŋ ȴǄΣǟ ȸşȦÊǪŋ ǰȀÂŋ ƂǕ ȣȦȒŀ .*ǖǟȀǄզǟ*
ÛǦzǼǪÊŋ ǦǟȦèǶ ǯȦǪǕ ȴǪȀ ʔøǪǵ VS (ȯ/ȯzŋ 0.1) ÿzȀǻzÔǖǟ ǼǕÊõşøǼǕȽ ȯzŸŢ ȸŋ ǥȀÛȩ ǼȞǟ ǥȀÛȩ TS (ȯ/ȟ
ȤȦǄŀ Ûȯzŀǂǟ Ž ǦÕǕȩǻ 15 ǥǼŋ (ȀǦèȦȀŋ 1 ȴȩø Whatman ȷȦǪǟş ȧøş ǼǕȞŀ) ǴǕȉȀǪǖǟ ȧøş ÙǝǟȀȉ ȝÕȀŀ .ǴȉȀŀş
ǦȒȦǖǟ/ÂǕȀĄţǟ ȧøş ȷzÒȀ ȷǕ Ǽƶ .ǦȀzŸÕǖǟ şǕ ǦǕȒȽΣǟ ǥȀȠǂǟ ȸŋş ŏzȒǖǟ ȸŋ ȸÔĦŀş ÛǦÛǕǂǟ ǥøǟȀΣǟ ǦǄøǻ Ž
.ȷzŸǖǟ ǠǼȝ R

ǦǟǟȀǻ ţȦȀǩøǟ) Ōŋ 40 ǦǟǟȀǻ ǦȞÊǟ (ǯøǼŋ ȃȦǕŌŋ) ǦǫǟzÛèǟ Ž ȝȉzŀ .*test for sensitivity* *ȀÊĦǪǖǟ ŌǄǂ øȀǪȉǟ*
.TS (NH4 Ōŋ/ÿǟȀȡşȀÒŋ 10) ÿzǕǫzŋǂǟ ǼȀøzŸõ ȯzŸŢ ȸŋ Ōŋ 1.0 (ȴŸŋ 30 ǦǟǟȀǻ ȺŸȉǟǼǖǟ ȀÛÕǖǟ Ûȴ Ÿŋ 80
ȶŸǕǯȀǕ ƂzǦǖǟ ȸŋ ǥǟǼè ȯȦȶȞǪèȦǟ ǥȀȉȀǦŋ ǦŸǄzΣǟ ǼÊŀ .R ÿzȀȀȣţǟ ǼǕÊõǕ ȸŋ ȟ 1ş ŏȦţǟ ȸŋ Ōŋ 9 ȣȦȒŀ
ǦÕȦШ ǴǦÔǨ ɍ ÿzȀȀȣţǟ ğȦȶǕÊǄ ȷǕ ǬǕШ ǦǕǫøşǻ ǦõȀǵ øØШ ȯzŀǂǟ õȀȝ .R ǦȒȦǖǟ/ÂǕȀĄţǟ ȧøş ȦȊŸȦèǕ ȝȉȶ
ʔŸȝ ǴȉǟşǕ ȸǻȦŋø ȷzȯ ǰǪȀŀ .Ǧȝȧè 1 ǥǼŋ °ÿ 60-50 ǥøǟȀǥ ǦǄøǻ Ž ǦǫǟzÛèɍǟ ȘȦĦŀ .ȤȉȦÒǖǟ ȧøş ȝŋ ȃȦǪ
.ȤȉȦÒǖǟ ȧøş

.$MnSO_4,H_2O$ **،Manganese sulfate R** ÂǕȀĄţǟ ğȦÂŸè

.ȀȽÂǪǟ ǦĦǕĦȉ ÛǼǥȦȉ ȀƥǕ ȷzŸǟ ğǟøzǻǟ .*Ȥȍzǖǟ*
750~) ȯzǫȦǯȀզǟ ȯzŸŢ Ž ǼŸţȝ Ǧǟǻşǻ Ķȡ ÛƂȦȣǖǟ ŏȦţǟ ȸŋ ŏÂǄ 0.6ş ŏȦţǟ ȸŋ ǼÂǄ 1 ǦǟǟȀǻ Ž Ǧǟǻşǻ .*ǦǫȦǟşǾǖǟ*
.TS (ȯ/ȟ

،TS ȯ ȟ 15 Manganese sulfate ÂǕȀĄţǟ ğȦÂŸè ȯzŸŢ

.$MnSO_4$ ȸŋ ȯ/ȟ 15.0 ʔŸȝ ȸzǪĦǕǼ ŏȦţǟ Ž ǦǟØŋ ÛR ÂǕȀĄŋ ğȦÂŸè

$C_2H_4O_2S$ ، **Thioglycolic acid R** ȬǕǼzÒǕȡzǕǯǖǟ Ȁƥ **Mercaptoacetic acid R** ȬǪǕèǕzǪǟȦõȀǻǟ ȀƥǕ
.(206 ǦĦȦÔǖǟ Û1963 ÛSRIP)

.(112 ǦĦȦÔǖǟ Û1963 ÛSRIP) ،$C_4H_6HgO_4$ **،Mercuric acetate R** ȨǦǝÂǖǟ ğȦǪǕèǕ

،Mercuric acetate/acetic acid TS ȬǪǕèǂǟ ȀƥǕ ȨǦǝÂǖǟ ğȦǪǕèǕ ȯzŸŢ

ȸŋ ¢ǖǟǼȞǪèǟ Ź ȸǾǖǟ ÛR1 ȺǄŸǯǖǟ ȬǪǕèǂǟ ȀƥǕ ȸŋ ȡȦõ øǟǼŌŋ Ž R ȨǦǝÂǖǟ ğȦǪǕèǕ ȸŋ ȟ 50 ȃǟøǺ .*ǖǟȀǄզǟ*
ȬȀøzŸõĶǦǖǟ ȀƥǕ ȯzŸĦŀȩ TS ȬǪǕèǂǟ ȀƥǕ/ǥøzŸǦǪţǟ ǦǕǄÊȦȀǦǖǟ ȯzŸŢ ʔŸȝ ÛȀøşȀȉ Ōǟǽ ȷȦõ ǟǽǕ ÛŌǦȩ
.Ōŋ 1000 ǯȦǫզ ÛVS (ȯ/ȯzŋ 0.1)

.(113 ǦĦȦÔǖǟ Û1963 ÛSRIP) .$HgBr_2$ **.Mercuric bromide R** ȨǦǝȀǖǟ ǼǕŋşȀǟ

Mercuric bromide AsTS ĘǴǝÂǒä ǼĿŋşÀæ ȯǶƔȚ

.Ǒŋ100 ǯÀǬǫq TS (ȯ/ȟ 750~) ȯǶǫÀǯǫä ȯǶƔȚ ȸŋ ǻȣÀõ øäǼǑŋ Ž R ĘǴǝÂǒä ǼĿŋşÀæ ȸŋ ȟ 5 ȁäØŀ .*ǒäÄDZǫä*

،**Mercuric bromide AsR** ĘǴǝÂǒä ǼĿŋşÀæ ȧøş

ǥøǼǑŋ ȧøǶǒä ǴǫÀÁǭ ȷǶǑǩ ȷǕ Ǣƶ .²ÿ/ȟ 120-65 ȷÂǩ ǒÀÊƳŋ Ûȷ ǶƔǒä ǒÀȒǼæ ǴĿȉÀǩ ȧäøşǕ ǑȶȞǬÊŀ .*ǒäÄDZǫä*

ĘȶȞæ ÛǴĿȉÀǬǒä ȧøş ȸŋ ǒäÂDZǕ ȝǑÀŀ .400 ȥƔȝ ǼŋǶÊǑŋ ÛǼǴÀǑǩ ǼÀǬǕ ȼȝ ƎȞȶä ȷȁǶǒä ƂǕ ǼȶǥøǴşÀÊŋ ÀǬŋ ɆƔȶÀæ

ÛƆǼȞŋ Ǩȡ ȔĿǹ ȧǶǶ ȧøǶǒä ĘǼȞŀş ÛǼäÂǒä ǑǝÀÊǒä ȷÀǴŀ ÛAsTS ĘǴǝÂǒä ǼĿŋşÀæ ȯǶƔȚ Ž ÛǈƔŋ 25 ȸȝ ǑǑÀ ɍ Àŋ

.ǒǶȒǒä ȸŋ ǼȶȚ Û Ƶ DZǼǒ ǑÀǬŀş

.ÿƳȚǒä Ž ǥåşǼÊŋ ÀÀøäǶȩ Ž AsR ĘǴǝÂǒä ǼĿŋşÀæ ȧøş ȷÂÁŀ .*ȸÀÂǺǬǒä*

şǕ ǴǥǥÀȉ ǴÁÛǭ ȷ̌ǬÀŀ ȼǫɉ ÀǬǶŋɉä ǥÀǸǕ ƂǕ şǕ ȄȶÎǒä ǒǶȑ ƂǕ ȏÀȞǩ ȹøǒä ȧøǶǒä ǑȶȞǬÊŀ ɍ ȷǕ Ǣƶ .*ǴȚǥƳŋ*

.ȧƳǜǫä ȥƔȝ ǴÁÛǭ ǴǕ ȷ̌ǬÀŀ ɍ

،$Hg(NO_3)_2,H_2O$ ،**Mercuric nitrate R** ĘǴǝÂǒä ǧäÀǬǫ

.ǴŋÀè R ĘǴǝÂǒä ǧäÀǬǫ ǼȞŀ .*ÄÀǾƠ*

.deliquescent ȶǶŋ ÛȷǶƔǒä ƵǼÀǹ ÀÀǒǕ şǕ ȒǼǕ ÛɃøǶƔæ ȧǶȞÊŋ .*Ƶ ǒǶǒä*

.TS (ȯ/ȟ 1000~) ǑÀǬǥǒä Ȓ þ ȸŋ ǥǨȣǒ ǴȶõǶ ǻǶDZǶæ ǒÀȶä Ž ȁäşǹ .*ǴǯǼÀşǾǒä*

،**VS** ȯ ȯǶŋ **0.01** **Mercuric nitrate** ĘǴǝÂǒä ǧäÀǬǫ ȯǶƔȚ

ǑÀǬǥǒä Ȓ þ ȯǶƔȚ ȸŋ Ǒŋ 5 ȸŋ ȷÀÂŋ Ž R ĘǴǝÂǒä ǧäÀǬǫ ȸŋ ÛǴĿǜǶǴȒŋ ǴǫşàǶŋ Ûȟ 3.5 ǴäÀǨ ȁäØŀ .*ǒäÄDZǫä*

.Ǒŋ 1000 ȝøǬǧ ǒÀȶæ ƵÀÁŀ ÛǒÀȶä ȸŋ Ǒŋ 500ş TS (ȯ/ȟ 1000~)

ǑǑÀŀ :ǴǒÀǬǒä ǴǑÀÛǒÀæ ȯ/ȯǶŋ 0.01 ȯǶƔȞȶƔǒ ĘǼǥǼǒä ÂǼõÀǬǒä ȸŋ ĘǑȞǬǒä ǈǬÀ .*standardization* *ȄǼǑǬǒä ǴǑÀǜ*

ȯǶƔȚ ȸŋ Ǒŋ 2ş TS (ȯ/ȟ 1000~) ǑÀǬǥǒä Ȓ þ ȯǶƔȚ ȸŋ Ǒŋ 2 ȣÀȒŀş ÛǴĿǜşÀƯ ǴƔDZǶǧ ƂǕ Ǒŋ 20.0

ÿǶǼǫǶŋɉä ǧÀǫǼèǶǼǒ ȯǶƔȞȶê ÀÀȞŀş Û°ÿ 20 ȸŋ ȝøǫåǕ ƂǕ åƎŀ .TS (ȯ/ȟ 45) ǑÀǼÀǼƩäş ÿǶǼǫǶŋɉä ǧÀÀƔè

.ǨäÀǭ ɆøÀæ ȷǶǒ øǶȚş ȯşǕ ƂǕ VS (ȯ/ȯǶŋ 0.01)

.(114 ǴȞÀÔǒä Û1963 ÛSRIP) HgO **.Mercuric oxide, yellow, R** ÀÀǒɉä ÛĘǴǝÂǒä ǼĿÊõǕ

،**Mercuric sulfate TS** ĘǴǝÂǒä ǧÀÀƔè ȯǶƔȚ

ȸŋ Ǒŋ 20 ȣÀȒŀş ÛǑÀÀȞǬǒä ǒÀǬǕ ÛǒÀȶä ȸŋ Ǒŋ 40 øäǼǑŋ R ÀÀǒɉä ĘǴǝÂǒä ǼĿÊõǕ ȸŋ ȟ 5 ǯÂȶŀ .*ǒäÄDZǫä*

.ȷÀæşǾǒä ÿÀǬ ȝøǬǧ ǑÀȞŀş ǒÀȶä ȸŋ Ǒŋ 40 ȣÀȒŀ Ż ȸŋş ÛTS (ȯ/ȟ 1760~) ǑÀøǶÀƔÊǒä Ȓ þ ȯǶƔȚ

1.0 ȸȝ ǼÀÂÀ ɍ ÛǒÀȶä :ƂÀǬǒä ǢƔÛǬȶä ɆøǴƔŀ ȸøǒä R ȯǶǫÀǯǼȶä **.Methanol, dehydrated, R** ǒÀȶä ȶşÂǩŋ ȯǶǫÀǯǼȶä

.ȟ/ŋƔŋ

.(117 ǦƗǺÔöä Û1963 ÛSRIP) CH_3OH ،**Methanol R** ǿǅǻǺǮǼǿä

ʡǓȝ ǷǅǬ .$C_6H_{12}N_4$ ÛHexamethylenetetramine ƙƞǰä ǛȝǺäǻ ƙǓǮǼǿä ǛèäǺȀ ،**Methenamine R** ƙƞǺǺǮǼǿä

.$C_6H_{12}N_4$ ǳƞ %99.0 ʡǓȝ ŐǑǺ ɍ Ǻƞ

.ǦƗǻäǺöä ǦǼȝ ÜȸǿǅǓǼ ȧǅƗÊƞ ȿǕ ȷǅǓöä ǦǅǼȝ ğäǿǅǓǼ .*ǅöǅöä*

.TS (ǿ/ȟ 750~) ǿǅǻǺǮǻqä ǿǅǓȚ Ȟȿȿ ǿǺǮä Ȟ ā ä ȿäȿ .*ǦǺǻǺȿǾöä*

ǿǅǺǺöä ǿǅǓȚ ǳƞ ğäÛ ȿ 3 ǿäǼŐƞ Őƞ 10 ȸÜ ȣ ǺȒǳ .ǿǺǮä ǳƞ Őƞ 25 Ȟ ȟ 2.5 ā äØǳ .*ǦǺǅǓŐöȿ Ǧȑǅȶ Σä*

ǺǼÊõȿǿǺǻ ǿǅǓȚ ǳƞ ğÛȿ 1 ǦǅǺȑÜ ǺǼä ǺƥǰäȸÜ ǿǺǮǅ ȸǿöä ÛǛǓǺǻǺ ȷǅǿ ǰǅǺ ÜTS ǿǅǻǺǮǻqä/ƙǺöǺǮǅ

ǦȿǿǺ ǿǅǓȚ ǳƞ ğäÛȿ 3 ʡǺƞÜ Őƞ 10 ǦƞǺÊǺ ȸÜ ȣǺȒǳ .VS (ǿ/ǿǅƞ 0.1) ğǺǻǅǺǺöä ǳƞ ȸǺʅä ȳǅǺǺǅÔöä

ǳƞ ğäÛȿ 3 ǦǅǺȑÜ ǺǼä ǺȒƞǰä ȸÜ āǿǺȒöä ȧǿäǰä ȸÜ ǿǺǮǅ Ûȧǿäǿ ȷǅǿ ǰǅǺ ÜTS ǿǅǻǺǮǻqä/ǿǅȶǺǿǅƞȿǮöä

.VS (ǿ/ǿǅƞ 0.1) ǾǺǿǅǓõȿǿǺǮä ȐƥǿǅǓȚ

.ȟ/ȠǓƞ 0.5 ǳȝ ǺǺǺ ɍ .*sulfated ash ǨǺǺǼǮä ǻǺƞǺöä*

ǾǺǿǅǺǓÊöä ȐƥǿǅǓȚ ǳƞ Őƞ 50 ȣǺȒǳ ÛǿǺǮä ǳƞ Őƞ 10 Ȟ ÛǦǺǅǿȒƞ ǦǿȿǺǅƞ Ûȟ 1.5 ǦäǺǺ ā äØǳ .*ǦÊǺǾǮä*

ǿǅǓǅȶÊ Ȑȶ Σä ǳƞ ğǻǺǺöä ǺǺǺǳ .ǦèǅÊȚ Ƙȡ ǺǺȽǺǺǻǿǅǺöä ǦƗäǿ ǦǼÔǺ ʡǿǬǵ ʡǓȝȿ ÛVS (ǿ/ǿǅƞ 0.5)

ǳƞ Őƞ 1 Őõ .ǺǺǺȶõ TS ǿǅǻǺǮǻqä/ŐǺǮǼǿä ğǺȶǵ ǿǅǓȚ ǿǺȶǺèǺǼ ÛVS (ǿ/ǿǅƞ 1) ȳǅǺǺǅÔöä ǺǼÊõȿǿǺǻ

.$C_6H_{12}N_4$ ǳƞ ȠǓƞ 35.05 ȕǅǺǿǳ VS (ǿ/ǿǅƞ 0.5) ȐƥǿǅǺǓÊöä ȐƥǿǅǓȚ

.4′-dimethylaminoazobenzene-4-sufonic acid ȐȶΣ ǷǺǅÔöä ǦǓǮä ،**Methyl orange R** ŐǺǮǼǿä ǦǺǺŐǺǺǺ

.(117 ǦƗǺÔöä Û1963 ÛSRIP) $C_{14}H_{14}N_3NaO_3S$

،**Methyl orange/ethanol TS** ǿǅǻǺǮǻqä ŐǺǮǼǿä ǦǺǺŐǺǺǺ ǿǅǓȚ

ȝǺǿq TS (ǿ/ȟ 750~) ǿǅǻǺǮǻqä ǿǅǓȚ ǳƞ ȣǺõ ǿäǼŐƞ Ȟ R ŐǺǮǼǿä ǦǺǺŐǺǺǳ ǳƞ ȟ 0.04 ā äØǳ .*ǿäǺȡq*

.Őƞ1000

Û1963 ÛSRIP) $C_{15}H_{15}N_3O_2$ Û4′-Dimethylaminobenzene-2-carboxylic acid ،**Methyl red R** ŐǺǮǼǿä ğǺȶǵ

.(118 ǦƗǺÔöä

،**Methyl red/ethanol TS** ǿǅǻǺǮǻqä ŐǺǮǼǿä ğǺȶǵ ǿǅǓȚ

(ǿ/ǿǅƞ 0.05) ȳǅǺǺǅÔöä ǺǼÊõȿǿǺǻ ǿǅǓȚ Őƞ 0.95 ǳƞ ǰǺǺƞ Ȟ R ŐǺǮǼǿä ğǺȶǵ ǳƞ ȝƞ 25 ā äØǳ .*ǿäǺȡq*

ǿäǼŐƞ ǅǺǺǳ ǺǺȜǾöä ǺǼǺȿ ǅǺǺȑ ŐǑǺǺ ǿǅǓǂä ǳǺǺǺǳ ÛTS (ǿ/ȟ 750~) ǿǅǻǺǮǻqä ǿǅǓȚ ǳƞ Őƞ 5ȿ VS

.Őƞ 250 ȝǺǿq TS (ǿ/ȟ 375~) ǿǅǻǺǮǻqä ǳƞ ȣǺõ

،**Methyl red/methylthionium chloride TS** ÿζĿϙζĿϙ ŌĽǯĿţâ ǼΛøζŸõ ŌĽǯĿţâ ğÂŧǵ ȯζŸȚ

Ōŋ 0.4 Ȝŋ TS (ȯ/ȟ 750~) ȯζφǮΛqâ Ž Ōŋ/ŋŸŋ 0.5 ÂĿõÀǪæ R ŌĽǯĿţâ ğÀþ ȯζŸȚ ȡŋ Ōŋ 20 ǯÂŧł .*ŏăÄDZqâ*

.ŏÀţâ Ž Ōŋ/ŋŸŋ 20 ÂĿõÀǪæ R ÿζĿϙζĿϙ ŌĽǯĿţâ ǼΛøζŸõ ȯζŸȚ ȡŋ

$C_{16}H_{18}ClN_3S,3H_2O$. methylene blue ƘŸĽǯĿţâ Ǵęøĥ ،**Methylthionium chloride R** ÿζĿϙζĿϙ ŌĽǯĿţâ ǼΛøζŸõ

.(119 ǦĦÀÔăă Û1963 ÛSRIP)

.**TS ȯ ȟ 0.2 Methylthionium chloride** ÿζĿϙζĿϙ ŌĽǯĿţâ ǼΛøζŸõ ȯζŸȚ

.Ōŋ 100 ǯÀǪφq ŏÀţâ ȡŋ ǿȣÀõ øăǼŌŋ Ž R ÿζĿϙζĿϙ ŌĽǯĿţâ ǼΛøζŸõ ȡŋ ŋŸŋ 23 ǯÂŧł .*ŏăÄDZqâ*

C.I. Û11 Ǩφăåøζŋ åζèǗ C.I. . Eriochrome black R ÿşÀõζΛøǗ åζèǗ **Mordant Black 11 R** Ǩφăåøζŋ åζèǗ

2-(2-hydroxy-6- Ĉøȯ Ƀåζ Ôăă ǴŸţâ ÜSolochrome Black ÿşÀõζȯζè åζèǗ ÛT ÿşÀõζΛøǗ åζèǗ Û14645 ɭęø

.(84 ǦĦÀÔăă Û1963 ÛSRIP) $C_{20}H_{12}N_3NaO_7S$ Ûnitro-4-sulfo-1-naphthylazo)-1-naphtol

،**Mordant Black 11 indicator mixture R** Ǩφăåøζŋ åζèǗ ÀĦÎħ ǰΛÂŋ

.R ÿζΛåζÔăă ǼΛøζŸõ ȡŋ ȟ 100 Ȝŋ R 11 Ǩφăåøζŋ åζèǗ ȡŋ ȟ 1 ǯÂŧł .*ŏăÄDZqâ*

.(122 ǦĦÀÔăă Û1963 ÛSRIP) .$C_{10}H_8O$. ß-naphthol R ȯζǯÀþ ÀǪĿæ **2-Naphthol R** ȯζǯÀþ–2

.**2-Naphthol TS1** ȯζǯÀþ–2 ȯζŸȚ

(ȯ/ȟ 80~) ÿζΛåζÔăă ǼĿÊõşøǼĿŁ ȯζŸȚ Ōŋ 40 Ž ÛĦǯΛǼǵ ȼǩøζŸæ ǼĿȜǕ ÛR ȯζǯÀþ–2 ȡŋ ȟ 5 ăăØł .*ŏăÄDZqâ*

.Ōŋ 100 ǯÀǪφq ŏÀţâ ȡŋ ǿȣÀõ øăǼŌŋ ȣÀȒłş TS

.ƘȒĦǪăă ǪΛǼǵ TS1 ȯζǯÀþ–2 ȯζŸȚ ȷζȮΛ ȷǗ Ǽƶ :*ǴȚǵŸŋ*

ǦĦÀÔăă Û1963 ÛSRIP) . R (ǴəÀţâ Ž 70) ŌΛÀǪĝăă ȐÞ **TS ȯ ȟ 1000~ Nitric acid** ŌΛÀǪĝăă ȐÞ ȯζŸȚ

.*d*~1.14 Ü(125

،**TS ȯ ȟ 130~ Nitric acid** ŌΛÀǪĝăă ȐÞ ȯζŸȚ

Àŋ) Ōŋ 1000 ǯÀǪφq ŏÀţâ ȡŋ ǿȣÀõ øăǼŌŋ TS(ȯ/ȟ 1000~) ŌΛÀǪĝăă ȐÞ ȯζŸȚ ȡŋ Ōŋ 130 ȤǜǺł .*ŏăÄDZqâ*

.*d*~1.07 Ü(ȯ/ȯζŋ 2 ăøÀŌł

،**TS ȯ ȟ 15~ Nitric acid** ŌΛÀǪĝăă ȐÞ ȯζŸȚ

.HNO_3 ȡŋ ȯ/ȟ 15.0 ȝŸȜ ȸζǪĦĿŏ ŏÀţÀæ ȤǜǺħ Û TS(ȯ/ȟ 1000~) ŌΛÀǪĝăă ȐÞ ȯζŸȚ .*ŏăÄDZqâ*

،**TS ȯ ȟ 3~ Nitric acid** ŌΛÀǪĝăă ȐÞ ȯζŸȚ

.HNO_3 ȡŋ ȯ/ȟ 3.0 ȝŸȜ ȸζǪĦĿŏ ŏÀţÀæ ȤǜǺħ Û TS(ȯ/ȟ 1000~) ŌΛÀǪĝăă ȐÞ ȯζŸȚ .*ŏăÄDZqâ*

.(128 ǦĦÀÔăă Û1963 ÛSRIP) $C_6H_5NO_2$ ،**Nitrobenzene R** ȡΛÂǺŧşÀǪÀăă

.(129 1963 SRIP) N_2 ,R

(132 1963 SRIP) **,Pancreatic digest of casein R**

.(135 1963 SRIP) **.Papaic digest of soybean meal R**

.(135 1963 SRIP) **.Paraffin, liquid, R**

enzyme **.Penicillinase R**

Bacillus cereus

thiazolidine

(ó/ȟ 750~) R

.ethyl acetate R

R

."Preparation of penicillinase

2.7 R 10 .*Preparation of penicillinase*

200 R 5.9 R

0.4 1000 (ó/ȟ 200~) 7.2

TS (ó/ȟ 1) 1 5 R

10

NCTC 9946 *Bacillus cereus*

°ÿ 37-35 °ÿ 37-18

16

.R **.Penicillinase TS**

."Penicillinase assay TS

36

.Penicillinase assay

.°ÿ1 ± 30 20 15 borosilicate glass

.ȯǺŁĦ̥èꞅä Ȱǒ ǫ °ÿ 30 gǿäÀШ Ȥ ȉäȥȮöä ℨꞰP ȷȥȮǩ ȷǘ

ȸȵ Ȱȵ 0.4 Ûgelatin TS ÿŸTä ȯȥŸȚ ȸȵ Ȱȵ 1.6 :БÀöä ǼĿǨÀöä Ɇȥȿ ǿÀǤǹꞅä ǟȥǤǘ Бǘ Ȥ ȉäȥȮöä ȣÀŘǩ

ÛTS ƙŸÊÀǤöä ȬÀÂǺ ÿȥÀǻȥȍ ȯȥŸȚ ȸȵ Ȱȵ 1ȿ ÛTS ÀÎÀöä ȯȥŸȚ ȸȵ gÀÛȩ 1 ÛȻǿÀǤǹä ǻäÀȶä TS äÀǼŸÊÀǤöä ȯȥŸȚ

ǻȥĿöä ȯȥŸȚ ȸȵ Ȱȵ 2.0 ȣÀŘǩ ǦĿǭÀǭ 15 ǼĦǽȿ Ǭȩǘȶä Ǧȝ ÀÊöä ȨŸÛǩ .Ȱȵ 1 ȴDzШ ȌÒư ȸȵ ƘǹȷäȤ ȉÀȮöä ÑÀǺ

.TS ƙŸÊÀǤöä ȬÀÂǺ ÿȥÀǻȥȍ ȯȥŸȚ ǦȥÀȑǘ ȸȵä ȸȵ ǿÀǤȝä ǻȥĿöä ȷȥǖ ȶÂǭ ȸȵä ȰDzÊǩ ÛVS (ȯ/ȯȥȵ 0.01)

ȓÀÎǭ ȝȵ ȕǦŘöÀ ǦĿǭÀǭ 36 ȯŸǹ ȷȥŸöä ȶÂǭ ȸȵä Ɇȥäȥ .ǦÊÀÀȰȶä ǰǝÀǭ ȸȵ TS äÀǼŸÊÀǤöä ȯȥŸȚ ȓÀÎǭ ǼÊĦǩ

ǦȝÀÊöä Ž R ƙŸĿÊÀǤöä ȬÀÂǺ ÿȥÀǻȥȍ ȸȵ ȠŸȵ 220 (7.0 ǒÀŁÀ Ž °ÿ 30 ǦDZǿǼöÀ) ȬȮÀǩ ȯǼĦȶ ȕȥÀȮȶä äÀǼŸÊÀǤöä

.TS äÀǼŸÊÀǤöä ȯȥŸȚ ȸȵ Ȱȵ 1 ȰȮǒ

Ž ȘÀĦǩȿ ǼȶDzöä ǦöÀǵ Ž ȥĿȿ ȤÀDzǩ Àȵǽȝ .ÿÀǘ 3-2 ȯŸǹ ȰȶĦÊǩȿ °ÿ 2ȿ 0 ƙä ǦDZǿǼöÀ ȷÂÂǩ .*ȸÀÂǺöä*

.ÀȚȉǘ gǼĦǒ äÀǼŸÊÀǤöä ȯȥŸȚ ȷÀÂǩ ȷǘ ȸȮȶĿȥ ÛǦȵȥǗ ğꞅȥǤȵǘ

.(137 ǦĦÀÔöä Û1963 ÛSRIP) ,**Peptone, dried, R** ȤÀDzȶä ÛȷȥǤǤöä

0.02 ɁŸȝ Ƀȥǂäȿ gǼȍȥȶÀ ȴȰĦȶä ȯȥŸǂä ȷȥȮÀ :БÀöä ǼŸÛȶä ɄǿǤŸǩ R ȤÀDzȵ ȷȥǤ .**Peptone R1** ȷȥǤǤöä

.ǤÀÀȰǩ ꞅǻÀĦȵ ȿǘ ꞅǻÀĦȵȿ ǼȥÀȍ Ȱȵ/ȟ

,**TS** ȯ ȟ **5 Peptone** ȷȥǤǤöä ȯȥŸȚ

ȤÀƩȿ R ÿȥÀǻȥÔöä ǼÀǿȥŸȭ ȸȵ ȟ 7ȿ ÛƙǺÊöä ȝȵ ÛǒÀȶä Ž R ȤÀDzȶä ȷȥǤǤöä ȸȵ ȟ 5.0 ǟäǾǩ .*ǒäÄDZɋä*

ɁǿǬǵ ȯǼĦǩ ÛǴȉÀǩ .ǦȰȩǻ 20 gǼȵ ɁŸȣȿ 8.4 - 8.0 ǒÀŁÀ ɁǿǬǵ ȯǼĦǩ .Ȱȵ 1000 ǯÀǭq ǒÀȶä ȸȵ ǭȣÀȭ ǿäǼȰȵ

.ǦȰȩǻ 30 gǼȵ °ÿ 115 ǦDZǿǼöÀ ȼȚÀШ ȴȰĦǩȿ Û7.4 - 7.2 ǒÀŁÀ

,**TS1** ȯ ȟ **1 Peptone** ȷȥǤǤöä ȯȥŸȚ

ǒÀȶä ȸȵ ǭȣÀȭ ǿäǼȰȵ Ž (ɄǿǭäȥĿǵ ǰĿÊǭ ƙÊǤ ǦȵÀŘŁ ȼÀÎǩ Àȵ ȿǘ) R1 ȷȥǤǤöä ȸȵ ȟ 1.0 ǟäǾǩ .*ǒäÄDZɋä*

ǦĿȝȿǘ Ž ÿÀÊȩǘ ɁŸȝ Ȱȵ 100 ȝȑȥǩ Û0.2 ± 7.1 ǒÀŁÀǤöä Бǘ ȯǼĦǩ ÛǼȥÀȍ ǴǤÔĿ ǾǼǺ ȿǘ ǴȉÀǩ ÛȰȵ 1000 ǯÀǭq

.ǦȰȩǻ 20 - 18 gǼȵ °ÿ 121 ǦDZǿǼöÀ ȘÀΣÀ ȴȰĦǩȿ ÛǦÀǻÀȥ

,**TS2** ȯ ȟ **1 Peptone** ȷȥǤǤöä ȯȥŸȚ

ǿäǼȰȵ ȤÀƩȿ R ÿȥÀǻȥÔöä ǼÀǿȥŸȭ ȸȵ ȟ 9ȿ ÛƙǺÊöä ȝȵ ÛǒÀȶä Ž R ȣÀƨä ȷȥǤǤöä ȸȵ ȟ 1.0 ǟäǾǩ .*ǒäÄDZɋä*

ǒÀŁÀ Бǘ ȯǼĦǩ ÛǴȉÀǩ .ǦȰȩǻ 20 gǼȵ ɁŸȣȿ 8.4 - 8.0 ǒÀŁÀ ɁǿǬǵ ȯǼĦǩ .Ȱȵ 1000 ǯÀǭq ǒÀȶǿöä ȸȵ ǭȣÀȭ

.ǦȰȩǻ 30 gǼȵ °ÿ 115 ǦDZǿǼöÀ ȘÀΣÀ ȴȰĦǩȿ Û7.4 - 7.2

. R(ȷäȿ/ȷäȿ ǦǝÀȶä Ž 70) ȬǿȥŸȭƘöä Ȁþ ,**TS** ȯ ȟ **1170~ Perchloric acid** ȬǿȥŸȭƘöä Ȁþ ȯȥŸȚ

.*d*~1.67 Ü(137 ǦĦÀÔöä Û1963 ÛSRIP)

[illegible] TS ([illegible] 1170~) [illegible] ،TS [illegible] 140~ **Perchloric acid** [illegible]

.d~1.09 [illegible] $HClO_4$ [illegible] 141 [illegible]

،VS [illegible] 0.1 **Perchloric acid** [illegible]

[illegible] 8.2 [illegible] 25 [illegible] R1 [illegible] 900 [illegible]
acetic anhydride [illegible] 32 [illegible] TS ([illegible] 1170~) [illegible]
[illegible] R1 [illegible] R
.[illegible] 24 [illegible] 1000

[illegible] .*water* [illegible]
.[illegible] 24 [illegible] 0.2 [illegible] 0.1 [illegible] R [illegible]

[illegible] 0.5 [illegible] .*standardization* [illegible]
[illegible] 2 [illegible] 120 [illegible] potassium hydrogen phthalate R [illegible]
"*Non-aqueous titration* [illegible]" [illegible] A [illegible]
[illegible] 20.42 [illegible] VS ([illegible] 0.1) [illegible] 1 [illegible] .127 [illegible]
.[illegible] .$C_8H_5KO_4$

.(108 [illegible] 1963 SRIP) . light petroleum R [illegible] **Petroleum, light, R** [illegible]

.(138 [illegible] 1963 SRIP) $C_{12}H_8N_2, H_2O$ 1,10-Phenanthroline ،***o*-Phenanthroline R** [illegible]

،**TS** [illegible] **1** ***o*-Phenanthroline** [illegible]

.[illegible] 100 [illegible] R [illegible] 0.11 [illegible]

،***o*-Phenanthroline TS** [illegible]

[illegible] 1.5 [illegible] 70 [illegible] ferrous sulfate R [illegible] 0.7 [illegible]
.[illegible] 100 [illegible] R [illegible]

،C_6H_6O ،**Phenol R** [illegible]

[illegible]
.[illegible]

[illegible] R [illegible] 100 [illegible] 15 [illegible]
.R [illegible] R [illegible] TS ([illegible] 750~) [illegible]

.[illegible] 15 [illegible] 15 [illegible] 1.0 [illegible] .*Completenss of solution* [illegible]

.°ÿ 40.5 ȸ ÕṎ ɼ .*congealing temperature ǻǽȶƠɼ ǥǿǤǥ ǦDZǿǻ*

ǦDZǿǻ Ž ǨǣǤǯǿ ɈàǫǤ ʔǿǭǥ ȤǤDZȽ ȹǝǤȠ ÿǤþ ʔǤȝ ǤǤǺǡ .*residue on evaporation ǨǺǤǤ ȸȠ ǤǤȶǯǤ*

.ǤǤȶǯǤ ȸȠ ȟ/ȠǤȠ 0.5 ȸ ǼǤÂǤ ǤȠ ȭǤǤ ɼ Û°ÿ 105 ǥǿǤǥ

.(139 ǦȞǤÔǤ Û1963 ÛSRIP) $C_{20}H_{14}O_4$.**Phenolphthalein R** ǨǤǤǯǫ ȯǫǤǤǤ

،Phenolphthalein/ethanol TS ȯǫǤǤǤɋǤ ǨǤǤǯǫ ȯǫǤǤǤ ȯǫǤȚ

.ȭȠ100 ǯǤǤɋ TS (ȯ/ȟ750~) ȯǫǤǤǤɋǤ ȯǫǤȚ ȸȠ ǤȢ Ǥȭ ǿǤǼȭȠ Ž R ǨǤǤǯǫ ȯǫǤǤǤ ȸȠ ȟ 1.0 ǟǤǾɫ .*ǿǤǤDZɋǤ*

،Phenolphthalein/pyridine TS ȸǤǼǤǨǤǤ ǨǤǤǯǫ ȯǫǤǤǤ ȯǫǤȚ

.ȭȠ 100 ǯǤǤɋ R ȸǤǼǤǨǤǤ ȯǫǤȚ ȸȠ ǤȢ Ǥȭ ǿǤǼȭȠ Ž R ǨǤǤǯǫ ȯǫǤǤǤ ȸȠ ȟ 1.0 ǟǤǾɫ .*ǿǤǤDZɋǤ*

Û1963 ÛSRIP) $C_{19}H_{14}O_5S$ ÛPhenolsulfonphthalein ǨǤǤǯǫ ɈǫǤǤȆ ȯǫǤǫ **،Phenol red R** ȯǫǤǤǤ ǥǤȶǥ

.(139 ǦȞǤÔǤ

،Phenol red/ethanol TS ȯǫǤǤǤɋǤ ȯǫǤǤǤ ǥǤȶǥ ȯǫǤȚ

0.05) ÿǫǤǻǫÔǤ ǼǤÊȭȿǿǼȽ ȯǫǤȚ ȸȠ ȭȠ 2.85 ȸȠ ɈǤÂȠ Ž R ȯǫǤǤǤ ǥǤȶǥ ȸȠ ȟ 0.05 ǟǤǾɫ .*ǿǤǤDZɋǤ*

ǿǤǼȭȠ ǫǤǤɫ ǼǤƎǤǤ ǼǤǤȿ ǫÛǤǤ ȯǫǤǂǤ ȸǤǺÊɫ .TS (ȯ/ȟ 750~) ȯǫǤǤǤɋǤ ȯǫǤȚ ȸȠ ȭȠ 5ȿ VS (ȯ/ȯǫȠ

.ȭȠ 250 ǯǤǤɋ TS (ȯ/ȟ 150~) ȯǫǤǤǤɋǤ ȯǫǤȚ ȸȠ ǤȢ Ǥȭ

،(Phosphate buffer, sterile, pH 4.5, TS) TS Û4.5 ǒǤȽǤǤ ÛɭǤǤǤ Ûǧ ǤǤÊǤǤ ǦǝǿǤǻ ȯǫǤȚ

Ž potassium dihydrogen phosphate R ÿǫǤèǤǫǤǤȿ ǨDZȿǿǼǤǤ ǦǤǝǤǤ ǧǤǤÊǤ ȸȠ ȟ 13.6 ǟǤǾɫ .*ǿǤǤDZɋǤ*

ɈǤȭ ǤǤ Û°ÿ 120 ǥǿǤǥ ǦDZǿǻ Ž ǥǼǤǫȶǤ Ž ǦǤǤȩǻ 20 ǥǼȠ ȯǫǤǂǤ ɭǤǤɫ .ȭȠ 1000 ǯǤǤɋ ǒǤȶǤ ȸȠ ǤȢ Ǥȭ ǿǤǼȭȠ

ȯǫǤȚ ȿǤ TS (ȯ/ȟ 1440~) ȭǤǿǫǤÊǤǤ ȐȸǤ ȯǫǤȞȶǤ 4.55 - 4.45 ƁǤ ǒǤȽǤǤǤ ȯǤǤɫ ÛǤǤǿȿǤȓ ȭǤǤ

.TS (ȯ/ȟ 110~) ÿǫǤèǤǫǤǤ ǼǤÊȭȿǿǼȽ

.ȯǫǤǂǤ ɭǤǤǤ ȭǤȩ ÛǤǤǿȿǤȓ ȭǤǤ ɈǤȭ ǤǤ ÛpH ǒǤȽǤǤǤ ȭǤǼǤǤ ǤDZǤɫ ɈǤ ǼƵ .*ǦȚǥƳȠ*

،(Phosphate buffer, sterile, pH 6.0, TS1) TS1 Û6.0 ǒǤȽǤǤ ÛɭǤǤǤ Ûǧ ǤǤÊǤǤ ǦǝǿǤǻ ȯǫǤȚ

ȟ8.0ȿ dipotassium hydrogen phosphate R ÿǫǤèǤǫǤǤ ǦǤǝǤǤ ǨDZȿǿǼǤǤ ǧǤǤÊǤ ȸȠ ȟ2.0 ǟǤǾɫ .*ǿǤǤDZɋǤ*

ǯǤǤɋ ǒǤȶǤ ȸȠ ǤȢ Ǥȭ ǿǤǼȭȠ Ž potassium dihydrogen phosphate R ÿǫǤèǤǫǤǤȿ ǨDZȿǿǼǤǤ ǦǤǝǤǤ ǧǤǤÊǤ ȸȠ

ǒǤȽǤǤǤ ȯǤǤǤ ÛǤǤǿȿǤȓ ȭǤǤ ɈǤȭ ǤǤ Û°ÿ 120 ǥǿǤǥ ǦDZǿǻ Ž ǥǼǤǫȶǤ Ž ǦǤǤȩǻ 20 ǥǼȠ ȯǫǤǂǤ ɭǤǤɫ .ȭȠ 1000

(ȯ/ȟ110~) ÿǫǤèǤǫǤǤ ǼǤÊȭȿǿǼȽ ȯǫǤȚ ȿǤ TS (ȯ/ȟ 1440~) ȭǤǿǫǤÊǤǤ ȐȸǤ ȯǫǤȞȶǤ 6.05 - 5.95 ƁǤ

.TS

.ȯǫǤǂǤ ɭǤǤǤ ȭǤȩ ÛǤǤǿȿǤȓ ȭǤǤ ɈǤȭ ǤǤ ÛpH ǒǤȽǤǤǤ ȭǤǼǤǤ ǤDZǤɫ ɈǤ ǼƵ .*ǦȚǥƳȠ*

،(Phosphate buffer, sterile, pH 6.0, TS2) TS2 Û6.0 ŏÀŁÀæ ÛĻĒŐĤöä Ûğ ÀÀÊÀöä Ǧəøäấ ȯɀŸȚ

anhydrous disodium hydrogen ǦŁəÀŋŸöä ȳɀÀấɀÔöä ǦŁəÀÀŋ ƙDZşøÆŁTä ğÀÀÊŽ ȡŋ ȟ 1.16 ā äØŀ .ŏäÄDZqā Ž potassium dihydrogen phosphate R ȳɀŁèÀķɀǦöä ƙDZşøÆŁTä ǦŁəÀÀŋ ğÀÀÊŽ ȡŋ ȟ 7.96ş phosphate R ȷÀõ äæÜ Û°ȳ 120 ğøäÀǵ ǦDZøấ Ž ğÆÈɀţä Ž ǦŐŁęấ 20 ğÆŋ ȯɀŸǂä ĻŐĤŀ .Ōŋ 1000 ʓÀǪɋ ŏÀţä ȡŋ ąȣÀõ øäÆŐŋ ȯɀŸȚ şÜ TS (ȯ/ȟ 1440~) ŌÀøɀÀÊÀöä Ȑƥ ȯɀŸĦƪȇ 6.05 - 5.95 БÜ ŏÀŁÀǦöä ȯÆĤŀ ÛÀøşÀȓ Ōöæ .TS (ȯ/ȟ 110~) ȳɀŁèÀķɀǦöä ÆŁÊõşøÆŁŁ

.ȯɀŸǂä ĻŐĤķ ŌǦę ÛÀøşÀȓ Ōöæ ȷÀõ äæÜ ÛpH ŏÀŁÀǦöä ŌÀÆĤķ ÂDZÀŀ ȷÜ Æƶ .ǦȚǵŸŋ

،(Phosphate buffer, sterile, pH 6.0, TS3) TS3 Û6.0 ŏÀŁÀæ ÛĻĒŐĤöä Ûğ ÀÀÊÀöä Ǧəøäấ ȯɀŸȚ

ȟ8.0ş dipotassium hydrogen phosphate R ȳɀŁèÀķɀǦöä ǦŁəÀÀŋ ƙDZşøÆŁTä ğÀÀÊŽ ȡŋ ȟ 20.0 ā äØŀ .ŏäÄDZqā ʓÀǪɋ ŏÀţä ȡŋ ąȣÀõ øäÆŐŋ Ž potassium dihydrogen phosphate R ȳɀŁèÀķɀǦöäş ƙDZşøÆŁTä ǦŁəÀÀŋ ğÀÀÊŽ ȡŋ ŏÀŁÀǦöä ȯÆĤŀ ÛÀøşÀȓ Ōöæ ȷÀõ äæÜ Û°ȳ 120 ğøäÀǵ ǦDZøấ Ž ğÆÈɀţä Ž ǦŐŁęấ 20 ğÆŋ ȯɀŸǂä ĻŐĤŀ .Ōŋ 1000 (ȯ/ȟ 110~) ȳɀŁèÀķɀǦöä ÆŁÊõşøÆŁŁ ȯɀŸȚ şÜ TS (ȯ/ȟ 1440~) ŌÀøɀÀÊÀöä Ȑƥ ȯɀŸĦƪȇ 6.05 - 5.95 БÜ .TS

.ȯɀŸǂä ĻŐĤķ ŌǦę ÛÀøşÀȓ Ōöæ ȷÀõ äæÜ ÛpH ŏÀŁÀǦöä ŌÀÆĤķ ÂDZÀŀ ȷÜ Æƶ .ǦȚǵŸŋ

،(Phosphate standard buffer, pH 6.8, TS) TS Û6.8 ŏÀŁÀæ Ûğ ÀÀÊÀöä ɃøÀÆĤŋ Ǧəøäấ ȯɀŸȚ

potassium dihydrogen phosphate R ȳɀŁèÀķɀǦöäş ƙDZşøÆŁTä ǦŁəÀÀŋ ğÀÀÊŽ ȡŋ ȟ 3.40 ā äØŀ .ŏäÄDZqā Ž anhydrous disodium hydrogen phosphate R ǦŁəÀŋŸöä ȳɀÀấɀÔöä ǦŁəÀÀŋ ƙDZşøÆŁTä ğÀÀÊŽ ȡŋ ȟ 3.53ş .Ōŋ 1000 ʓÀǪɋ ȷɀäÀÒöä ÆŁÊõÜ ɄəÀÀŋ ȡŋ БÀʅä ŏÀţä ȡŋ ąȣÀõ øäÆŐŋ

،(Phosphate buffer, pH 7.0, TS) TS Û7.0 ŏÀŁÀæ Ûğ ÀÀÊÀöä Ǧəøäấ ȯɀŸȚ

anhydrous disodium hydrogen ǦŁəÀŋŸöä ȳɀÀấɀÔöä ǦŁəÀÀŋ ƙDZşøÆŁTä ğÀÀÊŽ ȡŋ ȟ 5.76 ā äØŀ .ŏäÄDZqā Ž potassium dihydrogen phosphate R ȳɀŁèÀķɀǦöäş ƙDZşøÆŁTä ǦŁəÀÀŋ ğÀÀÊŽ ȡŋ ȟ 3.53ş phosphate R .Ōŋ 1000 ʓÀǪɋ ȷɀäÀÒöä ÆŁÊõÜ ɄəÀÀŋ ȡŋ БÀʅä ŏÀţä ȡŋ ąȣÀõ øäÆŐŋ

،(Phosphate buffer, sterile, pH 7.0, TS) TS Û7.0 ŏÀŁÀæ ÛĻĒŐĤöä Ûğ ÀÀÊÀöä Ǧəøäấ ȯɀŸȚ

anhydrous disodium hydrogen ǦŁəÀŋŸöä ȳɀÀấɀÔöä ǦŁəÀÀŋ ƙDZşøÆŁTä ğÀÀÊŽ ȡŋ ȟ 5.76 ā äØŀ .ŏäÄDZqā Ž potassium dihydrogen phosphate R ȳɀŁèÀķɀǦöäş ƙDZşøÆŁTä ǦŁəÀÀŋ ğÀÀÊŽ ȡŋ ȟ 3.55ş phosphate R ȷÀõ äæÜ Û°ȳ 120 ğøäÀǵ ǦDZøấ Ž ğÆÈɀţä Ž ǦŐŁęấ 20 ğÆŋ ȯɀŸǂä ĻŐĤŀ .Ōŋ 1000 ʓÀǪɋ ŏÀţä ȡŋ ąȣÀõ øäÆŐŋ ȯɀŸȚ şÜ TS (ȯ/ȟ 1440~) ŌÀøɀÀÊÀöä Ȑƥ ȯɀŸĦƪȇ 7.05 - 6.95 БÜ ŏÀŁÀǦöä ȯÆĤŀ ÛÀøşÀȓ Ōöæ

.TS (ȯ/ȟ 110~) ȳzȩèǩzǤöä ǼǀÊõşøǼǀȽ

.ȯzŸǂä ȴǀÕȞǩ ÕǤȩ ÛǶøşȀȓ Õ̃öǽ ȷȦõ äǽǓ ÛpH ŏȦȽȦǤöä ÕǀǼȞǩ ÂDzȦǂ ȷǓ Ǣȥ .ǦȚǵȲȠ

(Phosphate buffer, sterile, pH 7.2, TS) TS Û7.2 ŏȦȽȦǣ Ûȴǀ̃ȞöäÛğȦǺÊǺöä Ǥəøāǻ ȯzŸȚ،

ȟ1.4ş potassium dihydrogen phosphate R ȳzȩèǩzǤöäş ƘDZşøǼǀTä ǦƎəȦǺȹ ğȦǺÊǶ ȡȠ ȟ6.80 ā äØǂ .ǒäȀDZqā

gǼȍzȶä Ž ǦÕȩęǻ 20 gǼȠ ȯzŸǂä ȴ̃ǑȞǂ .Õ̃Ƞ 1000 ȝȦǬǫ ŏȦȶä ȡȠ ǽȣȦõ øäǼ̃ȮȠ Ž R ȳzǺǻzÔöä ǼǀÊõşøǼǀȽ ȡȠ

1440~) Õ̃ǺøzȦÊǺöä Ȑƥ ȯzŸȞȶȇ 7.3 - 7.1 ƂǓ ŏȦȽȦǤöä ȯǼȞǂ ÛǶøşȀȓ Õ̃öǽ ȷȦõ äǽǓ Û°ȳ120 gøäȁǵ ǦDZøǻ Ž

.TS (ȯ/ȟ 110~) ȳzȩèǩzǤöä ǼǀÊõşøǼǀȽ ȯzŸȚ şǓ TS (ȯ/ȟ

.ȯzŸǂä ȴǀÕȞǩ ÕǤȩ ÛǶøşȀȓ Õ̃öǽ ȷȦõ äǽǓ ÛpH ŏȦȽȦǤöä ÕǀǼȞǩ ÂDzȦǂ ȷǓ Ǣȥ .ǦȚǵȲȠ

(Phosphate standard buffer, pH 7.4, TS) TS Û7.4 ŏȦȽȦǣ ÛğȦǺÊǺöä ɃøȦǼȞȹ Ǥəøāǻ ȯzŸȚ،

potassium dihydrogen phosphate R ȳzȩèǩzǤöäş ƘDZşøǼǀTä ǦƎəȦǺȹ ğȦǺÊǶ ȡȠ ȟ 1.18 ā äØǂ .ǒäȀDZqā

Ž anhydrous disodium hydrogen phosphate R ǦƎəȦȠȸöä ȳzǺǻzÔöä ǦƎəȦǺȹ ƘDZşøǼǀTä ğȦǺÊǶ ȡȠ ȟ 4.30ş

.Õ̃Ƞ 1000 ȝȦǬǫ ȷzǂȀÒöä ǼǀÊõǓ ȗəȦǺȹ ȡȠ ƂȦȚä ŏȦȶä ȡȠ ǽȣȦõ øäǼ̃ȮȠ

(Phosphate buffer, sterile, pH 8.0, TS1) TS1 Û8.0 ŏȦȽȦǣ Ûȴǀ̃ȞöäÛğȦǺÊǺöä Ǥəøāǻ ȯzŸȚ،

dipotassium hydrogen phosphate R ȳzȩèǩzǤöä ǦƎəȦǺȹ ƘDZşøǼǀTä ğȦǺÊǶ ȡȠ ȟ 16.73 ā äØǂ .ǒäȀDZqā

ȡȠ ǽȣȦõ øäǼ̃ȮȠ Ž potassium dihydrogen phosphate R ȳzȩèǩzǤöäş ƘDZşøǼǀTä ǦƎəȦǺȹ ğȦǺÊǶ ȡȠ ȟ0.52ş

ÛǶøşȀȓ Õ̃öǽ ȷȦõ äǽǓ Û°ȳ120 gøäȁǵ ǦDZøǻ Ž gǼȍzȶä Ž ǦÕȩęǻ 20 gǼȠ ȯzŸǂä ȴ̃ǑȞǂ .Õ̃Ƞ 1000 ȝȦǬǫ ŏȦȶä

ȳzȩèǩzǤöä ǼǀÊõşøǼǀȽ ȯzŸȚ şǓ TS (ȯ/ȟ 1440~) Õ̃ǺøzȦÊǺöä Ȑƥ ȯzŸȞȶȇ 8.1-7.9 ƂǓ ŏȦȽȦǤöä ȯǼȞǂ

.TS (ȯ/ȟ 110~)

.ȯzŸǂä ȴǀÕȞǩ ÕǤȩ ÛǶøşȀȓ Õ̃öǽ ȷȦõ äǽǓ ÛpH ŏȦȽȦǤöä ÕǀǼȞǩ ÂDzȦǂ ȷǓ Ǣȥ .ǦȚǵȲȠ

(Phosphate buffer, sterile, pH 8.0,TS2) TS2 Û8.0 ŏȦȽȦǣ Ûȴǀ̃ȞöäÛğȦǺÊǺöä Ǥəøāǻ ȯzŸȚ،

anhydrous disodium hydrogen ǦƎəȦȠȸöä ȳzǺǻzÔöä ǦƎəȦǺȹ ƘDZşøǼǀTä ğȦǺÊǶ ȡȠ ȟ8.95 ā äØǂ .ǒäȀDZqā

Ž potassium dihydrogen phosphate R ȳzȩèǩzǤöäş ƘDZşøǼǀTä ǦƎəȦǺȹ ğȦǺÊǶ ȡȠ ȟ0.50ş phosphate R

ȷȦõ äǽǓ Û°ȳ 120 gøäȁǵ ǦDZøǻ Ž gǼȍzȶä Ž ǦÕȩęǻ 20 gǼȠ ȯzŸǂä ȴ̃ǑȞǂ .Õ̃Ƞ 1000 ȝȦǬǫ ŏȦȶä ȡȠ ǽȣȦõ øäǼ̃ȮȠ

ǼǀÊõşøǼǀȽ ȯzŸȚ şǓ TS (ȯ/ȟ 1440~) Õ̃ǺøzȦÊǺöä Ȑƥ ȯzŸȞȶȇ 8.1 - 7.9 ƂǓ ŏȦȽȦǤöä ȯǼȞǂ ÛǶøşȀȓ Õ̃öǽ

.TS (ȯ/ȟ 110~) ȳzȩèǩzǤöä

.ȯzŸǂä ȴǀÕȞǩ ÕǤȩ ÛǶøşȀȓ Õ̃öǽ ȷȦõ äǽǓ ÛpH ŏȦȽȦǤöä ÕǀǼȞǩ ÂDzȦǂ ȷǓ Ǣȥ .ǦȚǵȲȠ

Ǔ(141 ǦȞȦÔöä Û1963 ÛSRIP) ، R Õ̃ǺøzȦÊǺöä Ȑƥ **TS ȯ ȟ1440~ Phosphoric acid** Õ̃ǺøzȦÊǺöä Ȑƥ

.d~1.7

.(142 [illegible] 1963 SRIP) P_2O_5 **.Phosphorus pentoxide R** [illegible]

،$C_8H_4O_3$ ،**Phthalic anhydride R** [illegible]

[illegible]

[illegible] TS (~750 [illegible]) [illegible]

.R [illegible]

.°[illegible] 130 [illegible]

،**Phthalic anhydride/pyridine TS** [illegible]

R [illegible] 300 [illegible] R [illegible] 42 [illegible]

[illegible] 1 [illegible] (R [illegible])

[illegible] 1000 [illegible]

[illegible]

.[illegible] TS [illegible]/[illegible]

[illegible] oleic acid [illegible] **.(Polysorbate 80 R) R 80** [illegible]

.tripolyethylene-glycol 300-sorbitan ether [illegible]

[illegible]

[illegible] *.miscibility* [illegible]

.[illegible] R [illegible] TS (~750 [illegible])

.(144 [illegible] 1963 SRIP) $C_2H_3KO_2$ ،**Potassium acetate R** [illegible]

،**Potassium acetate TS** [illegible]

.[illegible] 1000 [illegible] R [illegible] R [illegible] 100 [illegible]

.(145 [illegible] 1963 SRIP) $KHCO_3$ **.Potassium bicarbonate R** [illegible]

.(148 [illegible] 1963 SRIP) KBr ،**Potassium bromide R** [illegible]

[illegible] R [illegible] ،**Potassium bromide IR** [illegible]

[illegible] 3 [illegible]

45[illegible]) "Spectrophotometry in the infrared region [illegible]

670 - [illegible] 1 [illegible] °[illegible] 250 [illegible] R [illegible]

[illegible] 0.1 [illegible] 4000 cm^{-1}

.1630 cm^{-1} [illegible] 3440

100 [illegible] R [illegible] .TS [illegible] 100 **Potassium bromide** [illegible]

[illegible] KBr [illegible]

.(151 [illegible] 1963 [illegible] SRIP) KCl .**Potassium chloride R** [illegible]

[illegible] R [illegible] .**Potassium chloride IR** [illegible]

[illegible] 3 [illegible]

[illegible] "Spectrophotometry in the infrared region [illegible]

[illegible] 1 [illegible] 250 [illegible] R [illegible] 45

[illegible] 0.1 [illegible] 670- 4000 cm^{-1}

.1630 cm^{-1} [illegible] 3440 [illegible]

[illegible] R [illegible] .TS [illegible] 350 **Potassium bromide** [illegible]

.KCl [illegible] 350 [illegible]

.(154 [illegible] 1963 [illegible] SRIP) $K_2Cr_2O_7$.**Potassium dichromate R** [illegible]

[illegible] R [illegible] .**Potassium dichromate R1** [illegible]

.$K_2Cr_2O_7$ [illegible] %99.9

.**Potassium dichromate TS** [illegible]

[illegible] 130 [illegible] 60 [illegible]

.[illegible] 1000.0 [illegible] VS [illegible] 0.005) [illegible] R1

[illegible] R [illegible] .VS [illegible] **0.0167** **Potassium dichromate** [illegible]

.[illegible] 1000 [illegible] $K_2Cr_2O_7$ [illegible] 4.904 [illegible]

[illegible] 1963 [illegible] SRIP) KH_2PO_4 .**Potassium dihydrogen phosphate R** [illegible]

.(155 [illegible]

.(156 [illegible] 1963 [illegible] SRIP) $K_3Fe(CN)_6$.**Potassium ferricyanide R** [illegible]

.**TS** [illegible] **10** **Potassium ferricyanide** [illegible]

[illegible] R [illegible] 1 [illegible]

.[illegible] 100 [illegible]

.[illegible] TS [illegible] 10) [illegible]

[illegible] 1963 [illegible] SRIP) $C_8H_5KO_4$.**Potassium hydrogen phthalate R** [illegible]

.(157

، **Potassium hydrogen phthalate standard TS** ÿǷȨèǨǶǴĞŝ ƙDZşøǼŒŢă ğɍǨǷ ƂøǨǶĥ ȯǷŸƮ

øăǼŌƞ Ž Ȗ°ÿ 120 ĞDZøǼŏă Ž ǨŌǽè ĞǨǺDZŧă ȖR ÿǷȨèǨǶǴĞŝ ƙDZşøǼŒŢă ğɍǨǷ ƌƞ ȟ 10.21 āăØł .*ǒăǨDZqă*

ȰŸǪς ȼφŬ ʔŸʒ ȯǷŸǂă ăØŁ pH ŏǨŁǨæ ȣǨǶł .Ōƞ 1000 ʓǨǪq R ȷǷǽǨȮŏă ǼŒÊȭŬ ƱəǨǺ ƌƞ ƃǨƪă ŏǨţă ƌƞ ǭȣǨȭ

.°ÿ 15 ĞDZøǼŏă Ž 4.00 ĞŧŒŎŏă

ĞȞǨÔŏă Ȗ1963 ȖSRIP) $C_4H_5KO_4$ **.Potassium hydrogen tartarate R** ÿǷȨèǨǶǴĞŝ ƙDZşøǼŒŢă ğăǨǹǨǹ

.(158

.Potassium hydrogen tartarate standard TS ÿǷȨèǨǶǴĞŝ ƙDZşøǼŒŢă ğăǨǹǨǹ ƂøǨǶĥ ȯǷŸƮ

ǼŒÊȭŬ ƱəǨǺ ƌƞ ƃǨƪă ŏǨţă ƌƞ Ōƞ 100 ƃŬ R ÿǷȨèǨǶǴĞŝ ƙDZşøǼŒŢă ğăǨǹǨǹ ƌƞ ȟ 2 ȣǨȒł .*ǒăǨDZqă*

ǥøăǨǥ ƃŬ ŌÔǪō ȯǷŸǂă ǥøăǨǥ ȭǨǪǩ .ƵǨȞæ ĞŸDZǷΣă ʓǨǩş ĞŒDZǨDZă ǥǻăǼè ğăæ ĞŸDZǷǥ Ž ǥăǷǪȞţă R ȷǷǽǨȮŏă

.decantation ĞφǨæqǨæ şŬ ǴŒȉǨǪŏǨæ ţǨǩş ȖǼęƘō ǼŸÔǪţă ŏǨɿă ȭǨǪǩ ȖĞǷǨȣŏă

.ƘȒȞǪŏă ʓǨǩù TS ÿǷȨèǨǶǴĞŝ ƙDZşøǼŒŢă ğăǨǹǨǹ ƂøǨǶĥ ȯǷŸƮ ȷǷȮǨ ȷŬ Ǽƶ .*ǴŢǥŶƞ*

.(159 ĞȞǨÔŏă Ȗ1963 ȖSRIP) KOH **.Potassium hydroxide R** ÿǷȨèǨǶǴŏă ǼŒÊȭşøǼŒŁ

R ÿǷȨèǨǶǴŏă ǼŒÊȭşøǼŒŁ ƌƞ ȯǷŸƮ **.TS ȯ ȟ 110~ Potassium hydroxide** ÿǷȨèǨǶǴŏă ǼŒÊȭşøǼŒŁ ȯǷŸƮ

.(ȯ/ȯǷƞ 2 ā øǨŌł Ǩƞ) KOH ȯ/ȟ 112 ĞăǨǥ ƂǷʒ

،Potassium hydroxide/ethanol TS1 ȯǷφǨǷǨqă ÿǷȨèǨǶǴŏă ǼŒÊȭşøǼŒŁ ȯǷŸƮ

ȯǷφǨǷǨqă ȯǷŸƮ ƌƞ ǭȣǨȭ øăǼŌƞ ȣǨȒłş ŏǨţă ƌƞ Ōƞ 20 Ž R ÿǷȨèǨǶǴŏă ǼŒÊȭşøǼŒŁ ƌƞ ȟ 40 āăØł .*ǒăǨDZqă*

.ŽǨÔŏă ŌəǨÊŏă ǼȮÊłş ȖŌŒŸŏă ȯăǷù ǼȭƘō ȭǨǪł .Ōƞ 1000 ʓǨǪq TS (ȯ/ȟ 750~)

Ž ǨæăØƞ ȖR ÿǷȨèǨǶǴŏă ǼŒÊȭşøǼŒŁ .VS ، ȯ ȯǷƞ 1 **Potassium hydroxide** ÿǷȨèǨǶǴŏă ǼŒÊȭşøǼŒŁ ȯǷŸƮ

.Ōƞ 1000 Ž KOH ƌƞ ȟ 56.10 ʔŸʒ ƂǷǪȞŒō ŏǨţă

ğɍǨǷ ƌƞ ȟ 5 ĞăǨǥ ƵǨDZł :ĞŒǨǪŏă ĞŌǨȖŏǨæ ȯ/ȯǷƞ 1 ȯǷŸȞŧŸō ƎŒęǼŏă ǨŒȭǨǪŏă ƌƞ ƎŌȞǪŏă ǬǪǨ .*ȨŒŌǪŏă ĞŌǨù*

ƙDZşøǼŒŢă ğɍǨǷ ƘφǨȭ ăæŬ .ĞŒùǷĞȒƞ ȷàǷǨş ğǨʒǨè 3 ǥǼƞ °ÿ 105 ĞDZøǼŏă Ž R ÿǷȨèǨǶǴĞŝ ƙDZşøǼŒŢă

ƱəǨǺ ƌƞ ƃǨƪă ŏǨţă ƌƞ Ōƞ 75 Ž āăØł .ƵŒǨDZǪŏă ŌĞę ƎȞŧÊł ȷŬ Ǽƶ ȖǥƘȭ ğøǷǼæ ŌȮÎæ ÿǷȨèǨǶǴĞŝ

TS ȯǷφǨǷǨqă/ƙǨŏǨǷ ȯǷǼǨŏă ȯǷŸƮ ȯǨŧǨǪèǨæ Ȗ ÿǷȨèǨǶǴŏă ǼŒÊȭşøǼŒŁ ȯǷŸȞŧê ǨǨǨłş R ȷǷǽǨȮŏă ǼŒÊȭŬ

1) ÿǷȨèǨǶǴŏă ǼŒÊȭşøǼŒŁ ȯǷŸƮ ƌƞ Ōƞ 1 ùǷǨŌł ÿǷȨèǨǶǴĞŝ ƙDZşøǼŒŢă ğɍǨǷ ƌƞ ȟ 0.2042 Ōȭ .ǨǨÎŧȭ

.ǨǨǷǪƞ ŌȮÎæ ÿǷȨèǨǶǴŏă ǼŒÊȭşøǼŒŢ ĞǨøǨǨţă ŌŒǨǂă ȨŒŌǨ ǻǨǨł ȷŬ Ǽƶ .VS (ȯ/ȯǷƞ

ȷǨǨł ȷŬ Ǽƶ ȰŏØō .ŏăǷŢŸō ȏǨǨł ǨƞǼʒ ȷǷǽǨȮŏă ǼŒÊȭŬ ƱəǨǺ ĞǨǷŸŏă ğăǼŒÊȭşøǼŒŢă ŌŒǨƮ ȮǪǪ .*ǥǨǨǪŏă*

.soda lime R ǻǻźÔǟǟ Ќƛ ǒźǕư ǡźǬǖǟ ǥǻşÂƞ ÛĜŧȮĤƕƞ ÛĜĞèÂȂƞ ĞȄDZȦDZà Кɖ ğǟǻǻÆè ğǟǽ ÀȂøǻźę Ž

Ž ǺǽǟØƕ ÛR ÿźȄèȦǩźĜǟǟ ÆȄÊõşøÆȄȽ ،**VS** ȯ ǒźƞ **0.5** **Potassium hydroxide** ÿźȄèȦǩźĜǟǟ ÆȄÊõşøÆȄȽ ǒźŶƮ

.Ōƞ 1000 Ž KOH ȡƞ ȟ 28.05 ҙŶȝ ȸźǪĤƕȄǒ ǒȦƫǟ

ɉǟźȦȝ ЌƠ Ğźźǒźƫǟ ĞÕȂÀÛǟǟ ƫȦĜǨÀǽ ǒźŶĤƕŧŶǒ ĘȄęÆǟǟ ÂȄÕÀǪǟǟ ȡƞ ĘÕĤƕǪǟǟ ƪǪȂ *.standardization* *ÈȄȄÕǭǟǟ ĞÕȂÄü*

.VS (ȯ/ǒźƞ 1) ÿźȄèȦǩźĜǟǟ ÆȄÊõşøÆȄȽ

Ž ǺǽǟØƕ ÛR ÿźȄèȦǩźĜǟǟ ÆȄÊõşøÆȄȽ ،**VS** ȯ ǒźƞ **0.1** **Potassium hydroxide** ÿźȄèȦǩźĜǟǟ ÆȄÊõşøÆȄȽ ǒźŶƮ

.Ōƞ 1000 Ž KOH ȡƞ ȟ 5.610 ҙŶȝ ȸźǪĤƕȄǒ ǒȦƫǟ

ɉǟźȦȝ ЌƠ Ğźźǒźƫǟ ĞÕȂÀÛǟǟ ƫȦĜǨÀǽ ǒźŶĤƕŧŶǒ ĘȄęÆǟǟ ÂȄÕÀǪǟǟ ȡƞ ĘÕĤƕǪǟǟ ƪǪȂ *.standardization* *ÈȄȄÕǭǟǟ ĞÕȂÄü*

.VS (ȯ/ǒźƞ 1) ÿźȄèȦǩźĜǟǟ ÆȄÊõşøÆȄȽ

ÆȄÊõşøÆȄȽ ،**VS** ȯ ǒźƞ **0.5** **Potassium hydroxide/ethanol** ǒźǬȦǮȂɋǟ ÿźȄèȦǩźĜǟǟ ÆȄÊõşøÆȄȽ ǒźŶƮ

.Ōƞ 1000 Ž KOH ȡƞ ȟ 28.05 ҙŶȝ ȸźǪĤƕȄǒ TS (ȯ/ȟ 710~) ǒźǬȦǮȂɋǟ ǒźŶƮ Ž ǺǽǟØƕ ÛR ÿźȄèȦǩźĜǟǟ

ȤȦȂÁƚ :ĞȄǒȦǪǟǟ ĞÕȂÀÛǒȦǽ ȯ/ǒźƞ 0.5 ǒźŶĤƕŧŶǒ ĘȄęÆǟǟ ÂȄÕÀǪǟǟ ȡƞ ĘÕĤƕǪǟǟ ƪǪȂ *.standardization* *ÈȄȄÕǭǟǟ ĞÕȂÄü*

ÆȄÊõşøÆȄȽ ǒźŶĤƕŧȇ ÀȂÀĤƕş ǒȦƫǟ ȡƞ Ōƞ 50 øǻÆŌƞ VS (ȯ/ǒźƞ 0.5) ŌȂøźŶõşøÆȄȚǟ Ȑƥ ǒźŶƮ ȡƞ Ōƞ 25.0

.ÀĤÎŧõ TS ǒźǬȦǮȂɋǟ/ƙȦǒȦǮź ǒźȄȄÀǒǟ ǒźŶƮ ǒȦŧĤǪèȦǽ ÛVS (ȯ/ǒźƞ 1) ǒźǬȦǮȂɋǟ/ÿźȄèȦǩźĜǟǟ

ÆȄÊõşøÆȄȽ ،**VS** ȯ ǒźƞ **0.02** **Potassium hydroxide/ethanol** ǒźǬȦǮȂɋǟ ÿźȄèȦǩźĜǟǟ ÆȄÊõşøÆȄȽ ǒźŶƮ

.Ōƞ 1000 Ž KOH ȡƞ ȟ 1.122 ҙŶȝ ȸźǪĤƕȄǒ TS (ȯ/ȟ 710~) ǒźǬȦǮȂɋǟ ǒźŶƮ Ž ǺǽǟØƕ ÛR ÿźȄèȦǩźĜǟǟ

ɉǟźȦȝ ЌƠ Ğźźǒźƫǟ ĞÕȂÀÛǟǟ ƫȦĜǨÀǽ ǒźŶĤƕŧŶǒ ĘȄęÆǟǟ ÂȄÕÀǪǟǟ ȡƞ ĘÕĤƕǪǟǟ ƪǪȂ *.standardization* *ÈȄȄÕǭǟǟ ĞÕȂÄü*

.VS (ȯ/ǒźƞ 0.5) ǒźǬȦǮȂɋǟ/ÿźȄèȦǩźĜǟǟ ÆȄÊõşøÆȄȽ ǒźŶƮ

.(161 ĞĤƕȦÔǟǟ Û1963 ÛSRIP) KI **.Potassium iodide R** ÿźȄèȦǩźĜǟǟ ÆȂǻźȂ

ȡƞ ȟ 10 ǡǟØƚ :ƂȦǪǟǟ øȦĜǪǹɼǟ ȖøĜŶƚ ȸØǟǟ R ÿźȄèȦǩźĜǟǟ ÆȂǻźȂ **.Potassium iodide AsR** ÿźȄèȦǩźĜǟǟ ÆȂǻźȂ

ǥÀÛę 2 ȣȦȒƚ ÛǒȦƫǟ ȡƞ Ōƞ 35ş AsTS (ȯ/ȟ 250~) ŌȂøźŶõşøÆȄȚǟ Ȑƥ ȡƞ Ōƞ 25 Ž R ÿźȄèȦǩźĜǟǟ ÆȂǻźȂ

ĞÁÛƕ ǰǪȦǩ ɼ ÜŌȄÆȄèøɉǟ ŌDZɉ ÿȦĤǟǟ øȦĜǪǹɼǟ ĘĜÛƚş stannous chloride AsTS ȸÀȂÆÔŌǟǟ ÆȂøźŶõ ǒźŶƮ ȡƞ

.ĞȄəÀƞ

83 ĞǽǟÀǽ ҙŶȝ ȸźǪȜ R ÿźȄèȦǩźĜǟǟ ÆȂźȄǒ ǒźŶƮ **.TS** ȯ ȟ **80** **Potassium iodide** ÿźȄèȦǩźĜǟǟ ÆȂǻźȂ ǒźŶƮ

.(ȯ/ǒźƞ 0.5 ǡøȦŌƚ Ȧƞ) KI ȡƞ ȯ/ȟ

.(162 ĞĤƕȦÔǟǟ Û1963 ÛSRIP) KNO_3 **.Potassium nitrate R** ÿźȄèȦǩźĜǟǟ ğǟÀǪǭ

،KNO_2 **.Potassium nitrite R** ÿźȄèȦǩźĜǟǟ ЌȂÀǪǭ

[illegible] .

[illegible] 0.35 [illegible] (~750 [illegible]) TS.

[illegible] **Potassium nitrite** [illegible] **100** [illegible] **TS.** [illegible] 100 [illegible] KNO_2.

[illegible] **Potassium permanganate R** $KMnO_4$ (SRIP 1963 [illegible] 165).

[illegible] **Potassium permanganate** **10** [illegible] **TS** [illegible] R [illegible] 10 [illegible] $KMnO_4$.

[illegible] **Potassium permanganate** **0.02** [illegible] **VS** [illegible] 3.161 [illegible] $KMnO_4$ [illegible] 1000 [illegible].

[illegible] *standardization* [illegible] 0.02 [illegible] 0.2 [illegible] 110 [illegible] 250 [illegible] 7 [illegible] (~1760 [illegible]) TS [illegible] 70 [illegible] 15 [illegible] 60 [illegible] 6.7 [illegible] 1 [illegible] (0.02 [illegible]) VS [illegible].

[illegible].

[illegible] **Potassium sulfate R** K_2SO_4 (SRIP 1963 [illegible] 165).

[illegible] **Potassium sulfate** **174** [illegible] **TS**.

[illegible] 174 [illegible] R [illegible] 1000 [illegible].

[illegible] **Potassium tetraoxalate R** $C_4H_3KO_8,2H_2O$ (SRIP 1963 [illegible] 166).

[illegible] **Potassium tetraoxalate standard TS**.

[illegible] 25.42 [illegible] R [illegible] R [illegible] 1000 [illegible].

[illegible] **Pyridine R** C_5H_5N (SRIP 1963 [illegible] 169).

[illegible] **Pyridine, anhydrous, R** [illegible] R [illegible] R.

[illegible] **Red stock standard TS**,

Ōŋ 6.3 ÛTS ǡȦĦƲĀöä ȷζȯ ȯζŸȚ ȡŋ Ōŋ 6.1 ǿäÆŌŋ ÛTS ǨȯȦæζȮöä ȷζȯ ȯζŸȚ ȡŋ Ōŋ 40.5 ƂÜ ȣȦŘł .*ǿäÀDZǭä*

Ȑƿ ȯζŸĦƲŧê Ōŋ 100.0 ƂÜ ƵȧȦÁł ÛTS ÆĀÆΣä ȷζȯ ȯζŸȚ ȡŋ Ōŋ 12.0 ÛTS ǧȦŋȘȦÒöä ƱəȦĀǭ ȷζȯ ȯζŸȚ ȡŋ

.ȝȦŧƚş ÛTS (ȯ/ȟ 10~) ŌĀǿζȦŸÊöä

.(170 ǴĦƲȦÔöä Û1963 ÛSRIP) $C_{12}H_6NNaO_4$ **.Resazurin sodium R** ȡĀǿşäȦÊĀÄöä ÿζĀǻζȍ

ʔŸȝ ɃζǪȜ R ȡĀǿşäȦÊĀǿ ÿζĀǻζÔö ȯζŸȚ **.TS ȯ ȟ 1 Resazurin sodium** ȡĀǿşäȦÊĀÄöä ÿζĀǻζȍ ȯζŸȚ

.$C_{12}H_6NNaO_4$ ȡŋ ȯ/ȟ 1 ǴæäȦǭ

.ƘŘĦƲǪöä ȝäȦù TS (ȯ/ȟ 1) ȡĀǿşäȦÊĀǿ ÿζĀǻζȍ ȯζŸȚ ȷζȮĀ ȷÜ Ǣƶ .*ǴȚǵŸɦ*

.(171 ǴĦƲȦÔöä Û1963 ÛSRIP) $C_6H_6O_2$ Û1,3-Dihydroxybenzene **.Resorcinol R** ȯζÆȅǿȂĀÄöä

.$C_6H_6O_2$ ȡŋ ȯ/ȟ 20 ʔŸȝ ɃζǪȜ R ȯζÆȅǿȂĀŸö ȯζŸȚ **.Resorcinol TS** ȯζÆȅǿȂĀÄöä ȯζŸȚ

ƙǺÊǪöȦæ ƚŌȞǪöä ǿÆĦł .NaCl ȡŋ ȯ/ȟ 9 ǴæäȦǭ ʔŸȝ ɃζǪȜ R ÿζĀǻζÔöä ÆĀǿζŸõ ȡŋ ƚŌĦŋ ȯζŸȚ .**TS** ƱĦƲŸŋ ȯζŸȚ

.ȦǴȅȦĀŋ ǴŌǂǭǻ 30 ǥÆŋ °ÿ 120 ǴDZǿǻ Ž ǿȦǺǴöä ǥÆȍζŋ Ž

.(172 ǴĦƲȦÔöä Û1963 ÛSRIP) Se **.Selenium R** ÿζÆÆŸÆÊöä

.Ǵŋȅ ÿζÆÆŸÆÊöä ǥȦŊÜ ǿÆĦł .*ȦĀǾƠ*

.Silica gel, desiccant, R ǴȦȧDZƫä ÛȦȮÆŸÆÊöä ǴŋŸȽ

ȯÆǴǪĀ ǥǻȦŋ ȦǴöȦȡ ŌǿȣǨ .ǴȦŸǪƯ ÿζDZƜ ǴÆDZȦDZä ǧȦǴÆǴǵ ŌȮÎæ ÆDZζǨ ÛȦÆəȂDZ ȼȽȝŋ ÛŌȮÎöä ȻÆȝ SiO_2 .*ƵȍζǻäØ*

ȦȚǪȞȅ ȝDZÄǪÊł ȷÜ ȡȮƩ ʔǿȦĦŋ) ǴǭζŸƫä ǧȦDZǪȦƫä ǻȦÆDZǪǨ ȷÜ ȡȮƩ .ǿȦƫä ȋȦÔǪŋȦæ ȦȚǪȞȅ ǾȦǪÊł ȦŋÆĀȝ ȦŒζȯ

.ƱŸȍȷä ȼǭζȯ ÿŸȚä ǾǺǪĀ ʔǿǪǵ °ÿ 110 ǴDZǿÆöä Ž ƙǺÊǪöȦæ (ǿȦƫä ȋȦÔǪŋɍ

ʔǿǪǵ °ÿ 50 ± 950 ǴDZǿÆöä Ž ÛǴŦùζǴŘŋ ǴǭşäζŋÛȟ 2 ÆȚŸł .*loss on ignition* *(ȯȦȞȉǭä) ǡȦȚǭȦæ ÆŌȦöä*

.ȟ/ŋŸŋ 60 ȡŋ ȦȝõÜ ÆŌȦĀ ÜǨȦæȝöä ȷäζöä

ÛǥǿşǿȦŌöä ȝȑζǨ ȦŁÆȦȝ .ȷäζȘ ÛǴǭşäζŋ ǴȡǿȦζ ǥǿşǿȦȩ Ž ȟ 10 ǴæäȦǭ ȝȑζł .*water absorption* *ǿȦƫä ȋȦÔǪŋä*

ǴöȦǵ Ž ȦȚȞȑζæ %80 ǴÆǴÊǭ ǴæζùȦæ ȦȚÆζ Ƀζƨä ȣŸȣöä ʔŌǴĀ ǴŌŸȣŋ ǴĀşȦǵ Ž ǴȝȦȅ 24 ǥÆŋ ÛöȦÛȣöä ǴȝşȦǿȦŋ

.ȟ/ŋŸŋ 310 ȡȝ ȷäζöä Ž ǥǻĀȦöä ŌŌǨ ɍ ÜǴÆǭȦǭ ȷäζĀ .1.19 ǴÆǴÊǭ ǴζȦȝÒæ ŌĀǿζȦŸȅ Ȑƿ ȝŋ ȷääζǨ

.(173 ǴĦƲȦÔöä Û1963 ÛSRIP) $AgNO_3$ **.Silver nitrate R** ǴŘȦöä ǧäȦǪǭ

ȡŋ ȯ/ȟ 42.5 ǴæäȦǭ ʔŸȝ ɃζǪȜ R ǴŘȦöä ǧäȦǪǭ ȯζŸȚ **.TS ȯ ȟ 40 Silver nitrate** ǴŘȦöä ǧäȦǪǭ ȯζŸȚ

.(ȯ/ȯζŋ 0.5 ǡǿȦŌł Ȧŋ) $AgNO_3$

ȡŋ ȯ/ȟ16.99 ɃζĦƲŌö ǿȦƫä Ž ǴæäǾŋ ÛR ǴŘȦöä ǧäȦǪǭ **.VS ȯ ȯζŋ 0.1 Silver nitrate** ǴŘȦöä ǧäȦǪǭ ȯζŸȚ

.Ōŋ 1000 Ž $AgNO_3$

[illegible] *standardization* [illegible] 0.1 [illegible]

[illegible] 40.0 [illegible] 100 [illegible]

[illegible] (~70 [illegible]) TS [illegible]

[illegible] 5 [illegible]

[illegible]

(~000 [illegible]) TS [illegible] 110 [illegible]

[illegible]

Soda lime R [illegible] (SRIP 1963 [illegible] 174).

Sodium acetate R [illegible] $C_2H_3NaO_2,3H_2O$ (SRIP 1963 [illegible] 176).

Sodium acetate 150 TS [illegible] R [illegible] 150 [illegible]

$C_2H_3NaO_2$ [illegible].

Sodium alizarinsulfonate R [illegible] 3,4- dihydroxy-9,10-anthraquinone-2-sulfonic acid [illegible] $C_{14}H_7NaO_7S,H_2O$.

[illegible]

[illegible] (~750 [illegible]) TS.

Sodium alizarinsulfonate 1 TS [illegible]

[illegible] 0.11 [illegible] R [illegible] 100 [illegible].

Sodium hydrogen carbonate R [illegible] $NaHCO_3$ (SRIP 1963 [illegible] 177).

Sodium carbonate R [illegible] $Na_2CO_3, 10H_2O$ (SRIP 1963 [illegible] 179).

Sodium carbonate, anhydrous R [illegible] Na_2CO_3 (SRIP 1963 [illegible] 179).

Sodium carbonate 50 TS [illegible] R [illegible]

50 [illegible] Na_2CO_3 [illegible] 0.5 [illegible].

Sodium carbonate standard TS [illegible]

[illegible] 2.64 [illegible] R [illegible] 2.093 [illegible] R [illegible]

[illegible] R [illegible] 1000 [illegible].

Sodium chloride R [illegible] NaCl (SRIP 1963 [illegible] 181).

Sodium citrate R [illegible] $C_6H_5Na_3O_7,2H_2O$.

.[illegible] $C_6H_5Na_3O_7$ [illegible] %99.0 [illegible]

.[illegible]

.TS ([illegible] 750~) [illegible]

.[illegible] 100 [illegible] .*appearance of solution* [illegible]

[illegible] 15 [illegible] R [illegible] .*water* [illegible]

.[illegible] 130 [illegible] 110 [illegible]

[illegible] 20 [illegible] 0.15 [illegible]

Non-aqueous [illegible] VS ([illegible] 0.1) [illegible]

[illegible] VS ([illegible] 0.1) [illegible] 1 [illegible] .(127 [illegible]) A [illegible] Titration

.$C_6H_5Na_3O_7$ [illegible] 8.603

.(182 [illegible] 1963 SRIP) $Na_3Co(NO_2)_6$ **.Sodium cobaltinitrite R** [illegible]

R [illegible] .**TS** [illegible] **100 Sodium cobaltinitrite** [illegible]

.$Na_3Co(NO_2)_6$ [illegible] 100 [illegible]

.(183 [illegible] 1963 SRIP) NaF **.Sodium fluoride R** [illegible]

.(185 [illegible] 1963 SRIP) NaOH **.Sodium hydroxide R** [illegible]

[illegible] R [illegible] .**TS** [illegible] **400~ Sodium hydroxide** [illegible]

.NaOH [illegible] 400 [illegible]

[illegible] R [illegible] .**TS** [illegible] **300~ Sodium hydroxide** [illegible]

.NaOH [illegible] 300 [illegible]

[illegible] R [illegible] .**TS** [illegible] **200~ Sodium hydroxide** [illegible]

.NaOH [illegible] 200 [illegible]

[illegible] R [illegible] .**TS** [illegible] **80~ Sodium hydroxide** [illegible]

.([illegible] 2 [illegible]) NaOH [illegible] 80 [illegible]

[illegible] R [illegible] .**VS** [illegible] **1 Sodium hydroxide** [illegible]

.[illegible] 1000 [illegible] NaOH [illegible] 40.01 [illegible]

[illegible] 1 [illegible] .*standardization* [illegible]

[illegible] 3 [illegible] 105 [illegible] R [illegible] 5 [illegible]

[illegible] 75 [illegible] R [illegible] 1 [illegible] 0.2042 [illegible] TS [illegible]
[illegible] .VS (ò/òζη 1) [illegible]
[illegible] *.standardization* [illegible]
[illegible] .R

[illegible] .VS ò òζη **0.2 Sodium hydroxide** [illegible]
[illegible] 1000 [illegible] NaOH [illegible] 8.001 [illegible]
[illegible] *.standardization* [illegible]
.VS (ò/òζη 1) [illegible]

[illegible] .VS ò òζη **0.1 Sodium hydroxide** [illegible]
[illegible] 1000 [illegible] NaOH [illegible] 4.001 [illegible]
[illegible] *.standardization* [illegible]
.VS (ò/òζη 1) [illegible]

[illegible] **.Sodium hydroxide VS** ò òζη **0.05** [illegible]
[illegible] 1000 [illegible] NaOH [illegible] 2.000 [illegible]
[illegible] *.standardization* [illegible]
.VS (ò/òζη 1) [illegible]

[illegible] **.Sodium hydroxide VS** ò òζη **0.01** [illegible]
[illegible] 1000 [illegible] NaOH [illegible] 0.4001 [illegible]
[illegible] *.standardization* [illegible]
.VS (ò/òζη 1) [illegible]

Sodium hydroxide, carbonate-free, [illegible] **VS** ò òζη **1** [illegible]
[illegible] 1000 [illegible] NaOH [illegible] 40.01 [illegible] .VS
[illegible] ò/h 600 - 400 [illegible]
[illegible] R
[illegible] .R

VS (ȯ/ȯϛƞ 1) ǬǾŀǿϛŸǬşǿǼŦŦā Ȑƥ ȯϛŸȚ ȡƞ Ǭƞ 45 ÀÀŇŀ . *test for carbonates ğÅȹϛǣÀȮǖǖ ǬǅǇǂ ǿǼǪǹɍ*
.ÀŇÎŧǬ TS ȯϛȹÅǯǪǫā /ƙÅǖÅǯϛ ȯϛǼǼǖǖ ȯϛŸȚ ȯÅŧŇǪèÅǣ Ûğ ÅȹϛǣÀȮǖǖ ȡƞ ƃÅƪā ȳϛÅåϛÔǖǖ ǼŦÊǬşǿǼŦŁ ȯϛŸĦŧȇ
ȴǅΣā ȯāÅǪǹɍ ʔŸȣŀş (Ƀǻǿş ÀƥǕ) ɄŸÀȹÀǕǖǖ ȷϛŸǖǖ Ǧǖǖàǫ ȐŧΣā ȡƞ ÙǬϛ ǿȣÅǬ ǿǖǼǬƞ ǦÀÅȚÅǖǖ ǦÛǬȹ Ž ȣÅȒŀ
ǦȆȹÅǭ ȻǿϛȚş ȝÅţş ɄŸÀȹÀǕǖǖ ȷϛŸǖǖ Ǧǖǖàǫ ÛʔŸȣŀ ÅŧǼǣ ÛȐŧΣā ȡƞ ǿȣÅǬ ǿǖǼǬƞ ǦȆȹÅǭ ȣÅȒŀ .Ǭƞ 20 ʔøǪǵ
.ȐŧΣā ȡƞ Ǭƞ 0.1 ȡƞ ÀǯǬǕ ǼŸÛǪÀ ɍ ÜȷÅǼŸȣǖǖ ǿāÀŧǪèÅǣ

ϚÅǅŀ :ǦǼǖÅǪǖǖ ǦǬÀÀÛǖÅǣ ȯ/ȯϛƞ 1 ȯϛŸĦŧŸǖ ĘȆęǼǖǖ ÂǼǬÀǪǖǖ ȡƞ ĘǬĦǪǖǖ ȴǪÀ *.standardization ȄǼǼǬǪǖǖ ǦǬÀǜ*
ǨǫÅǬ āǽǕ .ǦǼùϛǦȒƞ ȷàϛǩş ğÅʒÅè 3 ǵǼƞ °ȳ 105 ǦǅǿǼǖǖ Ž R ȳϛȆèÅǩϛǦǖǖş ƙǅşǿǼŦŦā ğɍÅǯϛ ȡƞ ȟ 5 ǦǖǖÀǨ
ȡƞ Ǭƞ 75 Ž āāǾŀ .ϚǼÅǅϛǖǖ ǬǦę ĘĦÊŀ ȷǕ ǼǅǼϛ ÛǵƘǦǬ ğāǿϛŸǣ ǬȮȉ ʔŸʒ ȳϛȆèÅǩϛǦǖǖş ƙǅşǿǼŦŦā ğɍÅǯϛ
ȯÅŧŇǪèÅǣ Ûğ ÅȹϛǣÀȮǖǖ ȡƞ ƃÅƪā ȳϛÅåϛÔǖǖ ǼŦÊǬşǿǼŦŁ ȯϛŸĦŧȇ ÀÀŇŀş R ȷϛǣÀȮǖǖ ǼŦÊǬǕ ɄəÅÀǫ ȡƞ ƃÅƪā ǒÅţā
ȡƞ Ǭƞ 1 ùϛÅȮǨ ȳϛȆèÅǩϛǦǖǖş ƙǅşǿǼŦŦā ğɍÅǯϛ ȡƞ ȟ 0.2042 ǬǬ .ÀŇÎŧǬ TS ȯϛȹÅǯǪǫā/ƙÅǖÅǯϛ ȯϛǼǼǖǖ ȯϛŸȚ
ǼŦÊǬşǿǼŦŁ ǬǼǖÅȚ ȄǼǼǬǨ ǻÅŇŀ ȷǕ Ǽƶ .VS (ȯ/ȯϛƞ 1) ğÅȹϛǣÀȮǖǖ ȡƞ ƃÅƪā ȳϛÅåϛÔǖǖ ǼŦÊǬşǿǼŦŁ ȯϛŸȚ
.ǿÀȮǪƞ ǬȮÎǣ ȳϛÅåϛÔǖǖ

ȷÂǺŀ ȷǕ Ǽƶ ǬǿǾ .ǖāϛȚŸǖ ôÀŇŀ ÅƞǼǼʒ ȷϛǣÀȮǖǖ ǼŦÊǬǕ ɄəÅÀǫ ǦÀϛŸǬǖǖ ğāǼŦÊǬşǿǼŦŦā ǬǼǖÅȚ ȮǪǪ *.ȡÀǺǪǖǖ*
.R āåϛÔǖǖ ƘȜ ǒϛŸƣ āϛǦǫǖǣ ǵǻşÂƞ ÛǼǼǅ ĘŸȣǨ ÛǦǦèÅƞ ǦǅǅÅǅϛā Ƙȡ ğāåǼè ğāǣ ÀǿāϛęŽ

Sodium hydroxide, carbonate-free, ğÅȹϛǣÀȮǖǖ ȡƞ ƃÅƪā ÛVS ȯ ȯϛƞ **0.5** ȳϛÅåϛÔǖǖ ǼŦÊǬşǿǼŦŁ ȯϛŸȚ
.Ǭƞ 1000 Ž NaOH ȡƞ ȟ 20.00 ɃϛĦǼǖ ǒÅţā Ž ÅāǾȟ ÛR ȳϛÅåϛÔǖǖ ǼŦÊǬşǿǼŦŁ .VS
ÂǼǬÀǪǖǖ ȡƞ ĘǬĦǪǖǖ ȴǪÀş ÛǿÅǪǹɍā ʔÀǅŀ ÛȯϛŸǂā ÀȒĦŀ *.ȄǼǼǬǪǖǖ ǦǬÀǜş ğÅȹϛǣÀȮǖǖ ǬǅǇǂ ǿǼǪǹɍā .ǒāÀǅǫā*
1) ğÅȹϛǣÀȮǖǖ ȡƞ ƃÅƪā ȳϛÅåϛÔǖǖ ǼŦÊǬşǿǼŦŁ ȯϛŸȚ ȷāϛǼʒ ǨƠ ǦϛϛȍϛţāǦǬÀÛǖǖ ţÅǦǨÅǣ ȯϛŸĦŧŸǖ ĘȆęǼǖǖ
.VS (ȯ/ȯϛƞ

Sodium hydroxide, carbonate-free, ğÅȹϛǣÀȮǖǖ ȡƞ ƃÅƪā ÛVS ȯ ȯϛƞ **0.2** ȳϛÅåϛÔǖǖ ǼŦÊǬşǿǼŦŁ ȯϛŸȚ
.Ǭƞ 1000 Ž NaOH ȡƞ ȟ 8.00 ɃϛĦǼǖ ǒÅţā Ž ÅāǾȟ ÛR ȳϛÅåϛÔǖǖ ǼŦÊǬşǿǼŦŁ .VS
ÂǼǬÀǪǖǖ ȡƞ ĘǬĦǪǖǖ ʔÀǅŀş ÛǿÅǪǹɍā ʔÀǅŀ ÛȯϛŸǂā ÀȒĦŀ *.ȄǼǼǬǪǖǖ ǦǬÀǜş ğÅȹϛǣÀȮǖǖ ǬǅǇǂ ǿǼǪǹɍā ÛǒāÀǅǫā*
1) ğÅȹϛǣÀȮǖǖ ȡƞ ƃÅƪā ȳϛÅåϛÔǖǖ ǼŦÊǬşǿǼŦŁ ȯϛŸȚ ȷāϛǼʒ ǨƠ ǦϛϛȍϛţāǦǬÀÛǖǖ ţÅǦǨÅǣ ȯϛŸĦŧŸǖ ĘȆęǼǖǖ
.VS (ȯ/ȯϛƞ

Sodium hydroxide, carbonate- ğÅȹϛǣÀȮǖǖ ȡƞ ƃÅƪā ÛVS ȯ ȯϛƞ **0.1** ȳϛÅåϛÔǖǖ ǼŦÊǬşǿǼŦŁ ȯϛŸȚ
.Ǭƞ 1000 Ž NaOH ȡƞ ȟ 4.001 ɃϛĦǼǖ ǒÅţā Ž ÅāǾȟ ÛR ȳϛÅåϛÔǖǖ ǼŦÊǬşǿǼŦŁ **.free, VS**
ÂǼǬÀǪǖǖ ȡƞ ĘǬĦǪǖǖ ʔÀǅŀş ÛǿÅǪǹɍā ʔÀǅŀ ÛȯϛŸǂā ÀȒĦŀ *.ȄǼǼǬǪǖǖ ǦǬÀǜş ğÅȹϛǣÀȮǖǖ ǬǅǇǂ ǿǼǪǹɍā ÛǒāÀǅǫā*

1) ğÀφzæÀÒöä ȸŋ БÀʅä ÿzÀẩzÔöä ÆŁÊõşøÆŁŁ òzŸŢ ɹäzÀʒ ǨƠ Ǵzzòzţä ǴÕÀÀÛöä ţÀǴǨÀæ òzŸĦʉŧŸö ĘŁęÆöä
.VS (ò/òzŋ

Sodium hydroxide, carbonate-free, ğÀφzæÀÒöä ȸŋ БÀʅä ÛVS ò òzŋ **0.2** ÿzÀẩzÔöä ÆŁÊõşøÆŁŁ òzŸŢ
.Ōŋ 1000 Ž NaOH ȸŋ ȟ 0.8001 ɃzĦʉŁö öÀţä Ž ÀæäØɦ ÛR ÿzÀẩzÔöä ÆŁÊõşøÆŁŁ **.VS**
ÂŁõÀǪöä ȸŋ ĘÕĦʉǪöä ʔÀDzɫş ÛøÀǴǪǹɼä ʔÀDzɫ Ûòzǂŧä ÀȒĦʉɫ *.ÈŁŁÕǪöä ǴÕÀÀüş ğÀφzæÀÒöä ŌDZɉ øÀǴǪǹɼä ÛöäÀDZqä*
1) ğÀφzæÀÒöä ȸŋ БÀʅä ÿzÀẩzÔöä ÆŁÊõşøÆŁŁ òzŸŢ ɹäzÀʒ ǨƠ Ǵzzòzţä ǴÕÀÀÛöä ţÀǴǨÀæ òzŸĦʉŧŸö ĘŁęÆöä
.VS (ò/òzŋ

Sodium hydroxide, carbonate-free, ğÀφzæÀÒöä ȸŋ БÀʅä ÛVS ò òzŋ **0.1** ÿzÀẩzÔöä ÆŁÊõşøÆŁŁ òzŸŢ
.Ōŋ 1000 Ž NaOH ȸŋ ȟ 0.4001 ɃzĦʉŁö öÀţä Ž ÀæäØɦ ÛR ÿzÀẩzÔöä ÆŁÊõşøÆŁŁ **.VS**
ÂŁõÀǪöä ȸŋ ĘÕĦʉǪöä ʔÀDzɫş ÛøÀǴǪǹɼä ʔÀDzɫ Ûòzǂŧä ÀȒĦʉɫ *.ÈŁŁÕǪöä ǴÕÀÀüş ğÀφzæÀÒöä ŌDZɉ øÀǴǪǹɼä ÛöäÀDZqä*
(ò/òzŋ 1) ğÀφzæÀÒöä ȸŋ БÀʅä ÿzÀẩzÔöä ÆŁÊõşøÆŁŁ òzŸŢ ǨƠ Ǵzzòzţä ǴÕÀÀÛöä ţÀǴǨÀæ òzŸĦʉŧŸö ĘŁęÆöä
.VS

(Sodium thioglycolate R ÿzÀẩzÔöä ğɼzÒŁŸȡzŁǭ) ،**Sodium mercaptoacetate R** ÿzÀẩzÔöä ğÀǪŁèŸzǪæÀõÀɦ
$.C_2H_3NaO_2S$

.ǴǴüÀǪÊɦ ğäøzŸæ *.Zòzöä*
.TS (ò/ȟ 750~) òzφÀǯÀqä òzŸŢ Ž ɹÀæşØöä ǴŁĦʉì ÜöÀţä Ž ɹÀæşØöä Àǵ *.ǴɦÀæşØöä*
.(189 ǴĦʉÀÔöä Û1963 ÛSRIP) $NaNO_2$ **.Sodium nitrite R** ÿzÀẩzÔöä ǨÀÀǪǿ
$.NaNO_2$ ȸŋ ò/ȟ 10 ǴäÀÀɥ Ƀzʒ R ÿzÀẩzÔöä ǨÀÀǪǿ òzŸŢ **.Sodium nitrite TS** ÿzÀẩzÔöä ǨÀÀǪǿ òzŸŢ
ȟ 6.900 ɃzĦʉŁö öÀţä Ž ÀæäØɦ ÛR ÿzÀẩzÔöä ǨÀÀǪǿ **.VS** ò òzŋ **0.1** **Sodium nitrite** ÿzÀẩzÔöä ǨÀÀǪǿ òzŸŢ
.Ōŋ 1000 Ž $NaNO_2$ ȸŋ

ʒȑzÀ :ǴŁöÀǪöä ǴÕÀÀÛöÀæ ò/òzŋ 0.1 òzŸĦʉŧŸö ĘŁęÆöä ÂŁõÀǪöä ȸŋ ĘÕĦʉǪöä ʅǪÀ *.standardization ÈŁŁÕǪöä ǴÕÀÀü*
Ōŋ 300 øäÆÕŋ ZäÀÁɫ ÛǴŁDZÀDZä ǵäÆè ğäæ ǴŸDZzǵ Ž VS (ò/òzŋ 0.02) ÿzŁèÀǩzǴöä ğÀφÀȢÀɦǨæ ȸŋ ȟ 50.0
.ÿzÀẩzÔöä ǨÀÀǪǿ òzŸŢ ȸŋ Ōŋ 20.0ş TS (ò/ȟ 100~) ÕÀøzÀŸÊöä Ȓþ òzŸŢ ȸŋ Ōŋ 25 ȣÀȒɫ ÛöÀţä ȸŋ
ÿzÀẩzÔöä ğÀÀŸèzŁǭ òzŸĦʉŧÊ ÀÀÀĦɫş R ÿzŁèÀǩzǴöä ÆÀẩzÀ ȸŋ ȟ 2 ȣÀȒɫ Ż .ĘəÀęẩ 10 ǵÆŋ ÆõǨö òzǂŧä õÀǪɫ
.ǴÀøşÀȒöä ğÀĦʉŁĦʉÔǪöä ʔÀDzɫş ÆŁÀÎöä ƙŁĦǩ ÂDzÀɫ .ÀȞÎŧõ TS ÀÎÀöä òzŸŢ òÀŧĦǪèÀæ ÛVS (ò/òzŋ 0.1)
.(190 ǴĦʉÀÔöä Û1963 ÛSRIP) $C_2Na_2O_4$ **.Sodium oxalate R** ÿzÀẩzÔöä ğɼÀÊõǃ
(195 ǴĦʉÀÔöä Û1963 ÛSRIP) Na_2SO_4 **.Sodium sulfate, anhydrous, R** ÛǴŁəÀɦɎöä ÛÿzÀẩzÔöä ğÀÀŸè

.(195 ... 1963 SRIP) $Na_2S,9H_2O$ **.Sodium sulfide R**

.Sodium sulfide TS

... R ... 25 ... R ... 12 ...

.100

$.Na_2B_4O_7, 10H_2O$ ... **.Sodium tetraborate R**

...

... 0.6 ... 20 ...

.TS (750~

... 0.3814 ... *.pH Value of a 0.01 mol/l solution* ... 0.01 ...

.°25 ... 9.20-9.15 ... .7.4-6.5 ... 100

... 20 ... 1.0 ... *.Chlorides* ...

... 1 ... (1000~ ... TS ...

... .(112 ...) "Limit test for chlorides ..."

.250 ...

70~) ... 2 ... 20 ... 0.5 ... *.Sulfates* ...

Limit test ... TS (...

.1.0 ... .(113 ...) "for sulfates

.Sodium tetraborate standard TS ...

... R ... 3.81 ...

.1000 ... R

...

...

$.C_{24}H_{20}BNa$ **.Sodium tetraphenylborate R** ...

...

.light petroleum R ...

.7.5 ... 20 ...

... .TS ... 30 **Sodium tetraphenylborate** ...

.$C_{24}H_{20}BNa$ ȡƞ ȯ/ȟ 30 ǦǟǟȀǛ ʔŸʒ ɃʐǪƷ R ÿʐǺǻʐÔǖǟ

ÛR ɄøǨǠǦǠǖǟ ǇȞȦÔǖǟ ʂǕ R ÿʐǼǼƞʐǖɉǟ ǼǼÊõʂøǼǼŁ ȡƞ ȟ 1 ʒƞ ĘəǠęǻ 5 ǥǼƞ õǟǟȞȽ ÛǠǟøʂȦ ȓ ȷȦõ ǟǽǕ .*ǦȚǵŸƞ*

.ʔȦÔǼǒ ǴǓȉǠȽʂ

.**R** ÿʐǺǻʐÔǖǟ ğȦǪǼèǕ ʐǪǟȦõȀƞ ȦȚǪǟ .Sodium thioglycolate R ÿʐǺǻʐÔǖǟ ğɍʐȮǼŸȡʐǼǫ

(197 ǦȞȦÔǖǟ Û1963 ÛSRIP) $Na_2S_2O_3,5H_2O$.**Sodium thiosulfate R** ÿʐǺǻʐÔǖǟ ğȦǠŸèʐǼǫ

ǒȦʈǟ Ž ǦǟǟØȟ ÛR ÿʐǺǻʐÔǖǟ ğȦǠŸèʐǼǫ .**VS** ȯ ȯʐƞ **0.1** **Sodium thiosulfate** ÿʐǺǻʐÔǖǟ ğȦǠŸèʐǼǫ ȯʐŸȚ

.Ȫƞ 1000 Ž $Na_2S_2O_3$ ȡƞ ȟ 15.82 ɃʐȞǼǒ

ȮȪȽ :ǦǼǒȦǪǖǟ ǦȪǠȀÛǖȦǟ ȯ/ȯʐƞ 0.1 ȯʐŸȞȶŸǖ ĘǼęǼǖǟ ȀǼõȀǪǖǟ ȡƞ ĘȪȞǪǖǟ ǇǪǠ .*standardization* *ȄǼǼȪǪǖǟ ǦȪǠȀü*

øǟǼȪƞ ȤȦǠǺȽʂ ǦǼDZȦDZǟ ǥǻǟǼè ğǟǽ ǦŸDZʐǵ ɃǕ VS (ȯ/ȯʐƞ 0.0167) ÿʐǼèȦǨʐǦǟ ğȦƞʂȀõ ɄəȦǠǼ ȡƞ Ȫƞ 30.0

ÛTS (ȯ/ȟ250~) ȬǠøʐŸõʂøǼǼȚǟ Ȓþ ȯʐŸȚ ȡƞ Ȫƞ 5ʂ R ÿʐǼèȦǨʐǦǟ ǼǠǻʐǠ ȡƞ ȟ 2 ȣȦȒȽ .ǒȦʈǟ ȡƞ Ȫƞ 50

ğȦǠŸèʐǼǫ ȯʐŸȞȶȇ øȀȞǪʈǟ ǻʐǼǟ ȀǠȦȞȽʂ ǒȦʈǟ ȡƞ Ȫƞ 100 øǟǼȪƞ ȤȦǠǺȽ .ĘəǠęǻ 10 ǥǼƞ ǼõȀǪǒ õȀǪǨʂ ǼÊȽ

.øȀȮǪƞ ȮȮȊǟ ÿʐǺǻʐÔǖǟ ğȦǠŸèʐǼǫ ȮǼǒȦȚ ȄǼǼȪǨ ǻȦȞȽ ȷǕ Ʀʑ .ȀȞȊȶõ TS ȦȊǠǖǟ ȯʐŸȚ ȯȦȶȞǪèȦǟ ÛÿʐǺǻʐ Ôǖǟ

ǒȦʈǟ Ž ǦǟǟØȟ ÛR ÿʐǺǻʐÔǖǟ ğȦǠŸèʐǼǫ .**VS** ȯ ȯʐƞ **0.05** **Sodium thiosulfate** ÿʐǺǻʐÔǖǟ ğȦǠŸèʐǼǫ ȯʐŸȚ

.Ȫƞ 1000 Ž $Na_2S_2O_3$ ȡƞ ȟ 7.910 ɃʐȞǼǒ

ȷǟʐǠʒ ǨƠ Ǧʐʐòʐʈǟ ǦȪǠȀÛǖǟ ʈȦǦǨǠǟ ȯʐŸȞȶŸǖ ĘǼęǼǖǟ ȀǼõȀǪǖǟ ȡƞ ĘȪȞǪǖǟ ǇǪǠ .*standardization* *ȄǼǼȪǪǖǟ ǦȪǠȀü*

.VS (ȯ/ȯʐƞ 0.1) ÿʐǺǻʐÔǖǟ ğȦǠŸèʐǼǫ ȯʐŸȚ

ǒȦʈǟ Ž ǦǟǟØȟ ÛR ÿʐǺǻʐÔǖǟ ğȦǠŸèʐǼǫ .**VS** ȯ ȯʐƞ **0.01** **Sodium thiosulfate** ÿʐǺǻʐÔǖǟ ğȦǠŸèʐǼǫ ȯʐŸȚ

.Ȫƞ 1000 Ž $Na_2S_2O_3$ ȡƞ ȟ 1.582 ɃʐȞǼǒ

ȷǟʐǠʒ ǨƠ Ǧʐʐòʐʈǟ ǦȪǠȀÛǖǟ ʈȦǦǨǠǟ ȯʐŸȞȶŸǖ ĘǼęǼǖǟ ȀǼõȀǪǖǟ ȡƞ ĘȪȞǪǖǟ ǇǪǠ .*standardization* *ȄǼǼȪǪǖǟ ǦȪǠȀü*

.VS (ȯ/ȯʐƞ 0.1) ÿʐǺǻʐÔǖǟ ğȦǠŸèʐǼǫ ȯʐŸȚ

.(198 ǦȞȦÔǖǟ Û1963 ÛSRIP) $SnCl_2, 2H_2O$.**Stannous chloride R** ɃȀǠǼÔȬǖǟ ǼǠøʐŸõ

.**Stannous chloride TS** ɃȀǠǼÔȬǖǟ ǼǠøʐŸõ ȯʐŸȚ

TS (ȯ/ȟ 250~) ȬǠøʐŸõʂøǼǼȚǟ Ȓþ ȯʐŸȚ ȡƞ Ȫƞ 100 Ž R ɃȀǠǼÔȬǖǟ ǼǠøʐŸõ ȡƞ ȟ 330 ǟȦØȽ .*ǒǟȀDZʠǟ*

.Ȫƞ 1000 ǯȦǪɋ ǒȦʈǟ ȡƞ ȣȦõ øǟǼȪƞʂ

.**Stannous chloride AsTS** ɃȀǠǼÔȬǖǟ ǼǠøʐŸõ ȯʐŸȚ

250~) ȬǠøʐŸõʂøǼǼȚǟ Ȓþ ȯʐŸȚ ȡƞ ʂȦÊƞ ǇDZǵ ǦʐȦȓǖǟ TS ɃȀǠǼÔȬǖǟ ǼǠøʐŸõ ȯʐŸȚ ȡƞ ȀȒȞȽ .*ǒǟȀDZʠǟ*

.fine-grained ğȦǼǦΣǟ ĘǼęǻ ǴǼȉȀǨ ȧøʂ ƎƷ ǴȉȀǠʂ ÛɄŸòɉǟ ǇDZȞŸǖ ȀǠʂȦÊƞ ǴǦÔǼǒ ʔŸȣȽ ÛTS (ȯ/ȟ

ȸ Ōn 10ş ŏǻţ ȸ Ōn 6 øǻǽŌn Ōn 10 Бǚ ȣǻȒł .*test for arsenic* (*Ǹǻøǻ*) *Ȭǽèøɉ Ōǅɉ øǻǫǹɍ*
ɉǻǻÛęş ŏǻţ ȸ Ōn 50 gøǻÛǾ Бǚ ȣǻȒł .Ōn 16 ǻÛŌłş ÛAsTS (ȯ/ȟ 250~) ȬǻøȥǕşøǽŤ Ȑ ƥ ȯȥǕ
ǦΘǻ ǦǺÛǻ ɉȥ ɉȥȮ ɍ .ȬǽèøɉŌǅɉ ȳǻǻ øǻǫǹɍ ĘǦÛł ǻŁǽǻ ÜAsTS ɃǻǽÔŌǽøȥǕ ȯȥǕ ȸ
.Ōn/ȳǻȡşǻȮn 1 ȸ ǽǻǻ ɍ ȬǽèøɉøǻǽŌn ɉǚ ɁǕȝ ǻȚȚł ÛǦøǻǨn ǦǺÛ Ōn-1 ȸ ǰǻŌǽ ȸ gǽǹ ǻǯŌǚ
.(199 ǦĦǻÔ Û1963 ÛSRIP) . R gǿØ ǻÎ ş R ǻùǻÛǦ ǻÎ **Starch R** ǻÎǻ
.(99 ǦĦǻÔ Û1963 ÛSRIP)**Starch, soluble, R** ā ȿØ ÛǻÎǻ
.**Starch TS** ǻÎ ȯȥǕ
ȬǻǻĦǫ Ȝn ÛȯȥǕŧ ǿŁ ȣǻȒłş ÛŏǻţȸŌn 5 Ȝn R ā ȿØ ǻÎ ȸ şǚ R ǻÎ ȸ ȟ 0.5 ǯǻȶł .*ŏǻǅq*
.Ǵǻłş ÛǻƎł ÛĘǻęǻ gǽȜ gǽn ɁǕȣł ÜŌn 100 Ǧǻǻ ǯǻq ŏǻţ ȸ ȣǻŌ øǻǽŌn Бǚ ÛǨǻǯ
.ǨȒĦǫ ǯǻù TS ǻÎ ȯȥǕ ɉȥȮ ɉǚ Ǣƶ .*ǦŢǵȲn*
Û1963 ÛSRIP) . starch-iodide paper R ǽǻȥŧ ǻÎ ȧøş **Starch/iodide paper R** ǻȥŧ ǻÎ ȧøş
.(200 ǦĦǻÔ
.$C_7H_6O_6S,2H_2O$.**Sulfosalicylic acid R** ȬǽǕÊǽèȥǕÊ Ȑ ƥ
.ǨŁǻ ɄǕǻǻ şǚ ȐǽǕ ɉȥǕ Ûǻq ǦÎ ǧǻøȥǕ .*Ȥ ŏȥ*
.TS (ȯ/ȟ 750~) ȯȥǻǯq ȯȥǕ Žş ŏǻţ Ž Ǧǻş .*ǦǻşØ*
Ʉǻn ȳǻƥ ɁǕȜ ɁÛȣn ȧøşǻ Ž ȴȒŢłş ɉǽǕȣ Бǚ ȸǺȄł ÛŏǻţȸŌn 50 Ž ȟ 5.0 ā ǿł .*ǦǻşØ Ƙȡ ǻȥţ*
ȸ Ǧǻŧǯ ɉǻş ǽǻǻ ɍ .°ȳ 105 ǦǅǿǽŽ ȤǻǅłşÛǦǻǻĦŌÊȣłÛǦȡøǻǴǽǻǦŌȥ Ǝ Ǵìǻ.ǦȜè 1 gǽn
.ȟ 1.0
ɁøǫǴ ÛƙǨȲǦ Ƙȡ gǻn ȸ ÛĘǦù Ž şǚ Ǧȡøǻ ǦŌȥ Ž ȟ 1.0 ȤÛǕ ǢǕł .*sulfated ash* *Ǩǻǽţ ǻǻ*
ǽǻǻ ɍ ÜǦǻǭ ǢŢǕłş ÛTS (ȯ/ȟ 1760~) ȬǻøȥǻǕÊ Ȑ ƥ ȯȥǕ ȸ Ōn 1 øǻǽŌn Ǧǻŧǯ ǢǻǨ ÛǻƎł .ȴĦǻǫ
.ȟ/ȠǕn 1.0 ȸ
175 Ǧǻǻ ɁǕȜ ɃȥǫȜ R ȬǽǕÊǽèȥǕÊ Ȑ ƥ ȯȥǕ .**Sulfosalicylic acid TS** ȬǽǕÊǽèȥǕÊ Ȑ ƥ ȯȥǕ
.$C_7H_6O_6S$ ȸ ȯ/ȟ
.(202 ǦĦǻÔ Û1963 ÛSRIP) SO_2 .**Sulfur dioxide R** ǨǻƎȮ ǽÊŌǚ Ʉǻǻ
ǦĦǻÔ Û1963 ÛSRIP) . R ȬǻøȥǻǕÊ Ȑ ƥ TS ȯ ȟ **1760~** **Sulfuric acid** ȬǻøȥǻǕÊ Ȑ ƥ ȯȥǕ
.*d*~1.84 (202
Ȑ ƥ ȯȥǕ .**Sulfuric acid, nitrogen-free** ƙǅşǻǫ ȸ Бǻ ÛTS ȯ ȟ **1760~** ȬǻøȥǻǕÊ Ȑ ƥ ȯȥǕ

[illegible] H_2SO_4 [illegible] 1760 [illegible] TS ([illegible] 1760~) [illegible]
[illegible]

[illegible] 8 [illegible] 5 [illegible] 45 [illegible] *Nitrates* [illegible]
[illegible]

[illegible] **Sulfuric acid 190~** [illegible] **TS**

[illegible] 9 [illegible] TS ([illegible] 1760~) [illegible] 1 [illegible]
d~1.12 [illegible] H_2SO_4 [illegible] 190 [illegible]

[illegible] **Sulfuric acid 100~** [illegible] **TS**

1000 [illegible] TS ([illegible] 1760~) [illegible] 57 [illegible]
d~1.065 [illegible] 1 [illegible]

[illegible] **Sulfuric acid 10~** [illegible] **TS**

[illegible] 1000 [illegible] TS ([illegible] 100~) [illegible] 100 [illegible]

[illegible] **Sulfuric acid 0.5** [illegible] **VS** [illegible] TS ([illegible] 1760~) [illegible]
[illegible] 1000 [illegible] H_2SO_4 [illegible] 49.04 [illegible]

[illegible] 0.5 [illegible] *standardization* [illegible]
[illegible] 1.5 [illegible] 270 [illegible] 1
[illegible] 50 [illegible] TS
[illegible] 52.99 [illegible] 1 [illegible] 0.5)
[illegible] VS.

[illegible] **Sulfuric acid 0.05** [illegible] **VS** [illegible] TS ([illegible] 1760~) [illegible]
[illegible] 1000 [illegible] H_2SO_4 [illegible] 4.904 [illegible]

[illegible] *standardization* [illegible]
[illegible] 0.5) [illegible] VS.

[illegible] **Sulfuric acid 0.01** [illegible] **VS** [illegible] TS ([illegible] 1760~) [illegible]
[illegible] 1000 [illegible] H_2SO_4 [illegible] 0.9808 [illegible]

[illegible] *standardization* [illegible]
[illegible] 0.5) [illegible] VS.

[illegible] TS [illegible] 1760~) [illegible] .VS [illegible] **0.005 Sulfuric acid** [illegible]

[illegible] 1000 [illegible] H_2SO_4 [illegible] 0.4904 [illegible]

[illegible] .*standardization* [illegible]

.VS [illegible] 0.5) [illegible]

[illegible] .$C_{18}H_{14}$ [illegible] 1,4-Diphenylbenzene ،***p*-Terphenyl R** [illegible]

،**Mercaptoacetic acid R** [illegible] ،Thioglycolic acid R [illegible]

2,7-Disodium 4-[(O-arsonophenyl)azo]-3-hydroxy-2,7-naphthalenedisulfonate, ،**Thorin R** [illegible]

،$C_{16}H_{11}AsN_2Na_2O_{10}S_2$

.**TS** [illegible] **2 Thorin** [illegible]

[illegible] 100 [illegible] R [illegible] 0.2 [illegible]

[illegible]

[illegible] 1 [illegible]

.$Th(NO_3)_4,4H_2O$ ،**Thorium nitrate R** [illegible]

[illegible]

.TS [illegible] 750~) [illegible]

2.401 [illegible] R [illegible] .**VS** [illegible] **0.005 Thorium nitrate** [illegible]

[illegible] 1000 [illegible] $Th(NO_3)_4$ [illegible]

[illegible] 0.005 [illegible] .*standardization* [illegible]

[illegible] R [illegible] 0.050

[illegible] 1) [illegible] 0.6 [illegible] 20.0 [illegible] 250 [illegible]

[illegible] VS [illegible] 0.1) [illegible] TS

[illegible] TS [illegible] 3.0 [illegible] 5 [illegible]

[illegible] 1 [illegible] 0.8398 [illegible]

.VS [illegible] 0.005) thorium nitrate [illegible]

.(207 [illegible] 1963 [illegible] SRIP) $C_{28}H_{30}O_4$.**Thymolphthalein R** [illegible]

،**Thymolphthalein/ethanol TS** [illegible]

[illegible] TS [illegible] 750~) [illegible] 100 [illegible] R [illegible] 0.1 [illegible]

.ǺǿșǺř Ȏǿǽ

.(209 ǴĦǺÔöä Û1963 ÛSRIP) C_7H_8 **.Toluene R** ȸǺζǿζǬöä

.(213 ǴĦǺÔöä Û1963 ÛSRIP) $C_4H_6O_6U,2H_2O$ **.Uranyl acetate R** ǑǼǿäǿζǼöä ğǺǬǼèǗ

.Uranyl/zinc acetate TS ǑǼǿäǿζǼöä ȎǿÂöä ğǺǬǼèǗ ȯζŸȚ

ȯζŸȚ ȸŋ Ōŋ 5ş ŏǺţä ȸŋ Ōŋ 50 ȝŋ ƙÅÊǬöǺǽ R ǑǼǿäǿζǼöä ğǺǬǼèǗ ȸŋ ȟ 10 ǟäǾł .*ŏäǺDZqä*

ȸŋ Ōŋ ş ŏǺţä ȸŋ Ōŋ 30 ȝŋ ƙÅÊǬöǺǽ R ȎǿÂöä ğǺǬǼèǗ ȸŋ ȟ 30 ǟäǾł ÜTS (ȯ/ȟ 300~) ȎǼǬèɉä Ȑƥ

ǴǼìÄǬöǺǽ ţÂǺŀş ÛǴζÄ8öä ǥǿäÄǵ ǴDZǿá ƂǗ äáƎǼö ɈǺõÄǬ ÛɈɍζŸǂä ǯÂŧł .TS (ȯ/ȟ 300~) ȎǼǬèɉä Ȑƥ ȯζŸȚ

.ǑÔǺǨ ǴǴŸƀ áäζŋ ǴǺǗ

ȨəǺęá ǥǼȞö ȤǺȞǽ ȼǼŸȡ Ƶ ɃǾöä ŏǺţä **.Water, carbon-dioxide-free, R** ɈζǽÀȮöä ǼǼÊõǗ ɄəǺǻ ȸŋ ƃǺȴä ÛŏǺţä

.ȸǺÂǺǬöäş ǼǺƎǬöä ŏǺǻǬǗ ɃζƨäȣŸ8öä ȸŋ Ʉŧǂäş

.Xylenol orange R ȯζǼŸǺäÂöä ǴǼöǺǑǨǺŀ

[3*H*-2,1-Benzoxathiol-3-ylidene bis [(6-hydroxy-5-methyl-*m*-phenylene) ,methylenenitrilo]] .tetraacetic acid, *S*,*S*-dioxide,$C_{31}H_{32}N_2O_{13}S$

.ƃǺǑǨǺǽ ɈζŸǽ ȧζĦÊŋ .*Ȥöζäö*

.TS (ȯ/ȟ 750~) ȯζǿǺǯǺqä ȯζŸȚ Žş ŏǺţä Ž ǟäşǽ .*ǴǼǿǺǽşǾöä*

.Xylenol orange indicator mixture R ȯζǼŸǺäÂöä ǴǼöǺǑǨǺŀ ÄȞÎŋ ǰǺÂŋ

.R ȳζǼèǺǩζǴöä ğäÄǬǷ ȸŋ ȟ10 ȝŋ R ȯζǼŸǺäÂöä ǴǼöǺǑǨǺŀ ȸŋ ȟ 0.1 ǯÂŧł .*ŏäǺDZqä*

.(215 ǴĦǺÔöä Û1963 ÛSRIP) **.Yeast extract, water-soluble, R** ÛŏǺţǽ Ǵǽäşǿöä ÛǥƘŧǬä ǴöŸǹ

.Yellow stock standard TS ÄǺöɉä ȸǺÂȴä ɃǿǺǼȞţä ȯζŸǂä

ȸŋ Ōŋ 10.7 ÛTS ȃǺĦǺöä ɈζǾ ȯζŸȚ ȸŋ Ōŋ 1.9 ÛTS ǨǾǺǽζǑöä ɈζǾ ȯζŸȚ ȸŋ Ōŋ 9.5 ƂǗ ȣǺȒł .*ŏäǺDZqä*

Ȑƥ ȯζŸĦŧê Ōŋ 100.0 ƂǗ ȤǺǺǺł ÛTS ǼǺǼΣä ɈζǾ ȯζŸȚ ȸŋ Ōŋ 4.0 ÛTS ğǺŋşÄǑöä ɄəǺǻ ɈζǾ ȯζŸȚ

.ǯÂŧłş ÛTS (ȯ/ȟ 10~) ȎǺǿζǺŸÊöä

.ǿǺǴȡ şǗ ÛǼĦǴĦǹ ȧζĦÊŋ Ü(216 ǴĦǺÔöä Û1963 ÛSRIP) Zn **.Zinc R** ȎǿÂöä

:ǴǼöǺǬöä ğäǿǺǬǹɍä ɄǿǴŸł ɃǾöä R ǼĦǴĦţä ȎǿÂöä **.Zinc AsR, granulated** ǼĦǴĦţä ÛȎǿÂöä

ɃÄǺǼÔǑöä ȎǺǿζŸõşǿǼǼä Ȑƥ ȯζŸȚ ȸŋ Ōŋ 10 ȣǺȒł *.limit of arsenic (ǸǼǿǿǺÂöä) ȎǼǼèǿɉä ǼǴ*

ǑDZɉ ȳǺȞöä ǿǺǬǹɍä ȨǴÛŀş ÛŏǺţä ȸŋ Ōŋ 50 ƂǗ AsTS (ȯ/ȟ 250~) stannated hydrochloric acid

.ǴǼəǺŋ ǴÅÛö ǴǺǗ ǰǬǺǨ ɍ ÜǴȝǺè 1 ǥǼŋ ÄŧǬÊǼö ǑȝǺǺǬöä ȭÄǬłş R ǼĦǴĦţä ȎǿÂöä ȸŋ ȟ 10 ǑŧȞǬÊł ÜȎǼǼèǿɉä

ȯɀŸȚ ȸɳ Ȯɳ 0.1 ǴɀȦȓǗ Ʒɳ ȭȨȨèǿɉä ȮDZɉ ǿȦǬǹɍä ǻȦȞȽ .*test for sensitivity* ȅÊHǬǟ ȮDZɉ ǿȦǬǹɍä

.ÂȨȽɳ ȸȮȉȘ ÛƵȨȦǹ ÛȦȦȍǗ ɈɀŸä ǦǺÛǯ ǰǬǨ ÜAsTS ƵȦǺȶä ȭȨȨèǿɉä

.(216 ǦHȦÔǟ Û1963 ÛSRIP) $C_4H_6O_4Zn,2H_2O$ **.Zinc acetate R** ȭǬÂǟ ǧȦǬèǗ